

Region 6 Terrestrial Restoration and Conservation Strategy



USDA Forest Service

Pacific Northwest Region

Terrestrial Restoration and Conservation Strategy

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Chapter 1: Prioritization Process

Introduction

Hundreds of different wildlife and plant species and habitats contribute to breathtaking biodiversity on Forest Service (FS) lands in Oregon and Washington. Many species and habitats are unique or extremely rare, some have undergone significant declines, and others are of high social or economic interest. Continued decreases in funding and resources raise challenging management questions. What are the most critical species and habitats of conservation concern? Where are the most important places to spend limited funding to conserve, restore, and enhance habitats and landscapes for these species? Addressing these questions requires a systematic process for analyzing and prioritizing species and habitats, then providing a framework for implementing these priorities. To address this need, the Terrestrial Restoration and Conservation Strategy (TRACS) has been developed for FS lands in the Pacific Northwest Region (Region 6).

The TRACS theme is **“Protect the Best and Restore the Rest.”** TRACS identifies species, habitats, and watersheds that are Region 6 priorities for conservation, restoration, and habitat enhancement. These biological resources are priorities because of one or more of the following reasons: departure from historical condition or abundance, strong public or FS management interest, rarity, ongoing threats including climate change, and historical use. **Conservation** will be aimed at protecting and maintaining healthy and functional habitats, **restoration** will focus on improving degraded habitats, and **enhancement** will improve habitat components.

The vision for TRACS is to:

- Identify Regional Priority Species, Habitats, and Watersheds.
- Use these priorities to guide planning, funding, and implementation of conservation, restoration, and enhancement activities in Forest and Regional programs of work and projects, including broad landscape-level planning efforts.
- Encourage integration among FS programs and development of collaborative project opportunities across administrative boundaries with internal and external partners.
- Provide an effective tool for developing more resilient and sustainable habitats and landscapes for wildlife and plants.

The key components of this Strategy are:

1. Regional Priority Species, Habitats, and Watersheds that form the foundation for more strategic investment in habitat restoration and conservation work.
2. A framework for incorporating the Regional priorities into Forest projects and programs that includes:
 - Recognition of the key role of wildlife and botany program leadership, and the importance of collaboration with internal and external partners.
 - Identification of opportunities for integrating Regional Priority Species and Habitats into project planning.
 - Examples showing how to use TRACS data and incorporate priorities into actions.
 - Guidelines on tracking accomplishments for conservation and restoration.

The priorities for the nine ecoregions that encompass national forests in Oregon and Washington are intentionally regional in scale, and do not include all unique, forest-level species or habitats. However, the assumption of the Strategy is that field staff personnel have the experience and knowledge to use more local data to identify specific locations of species and habitats for conservation and restoration actions.

Collaboration and integration with other programs is critical for the success of TRACS. Some projects may be specifically designed for Priority Species or Habitats, or both, within or outside of Priority Watersheds. However, most of the TRACS conservation and restoration work will result from integration of actions to benefit Priority Species and Habitats through collaboration with internal and external partners to plan vegetation, invasive species, fuels, recreation, engineering and other types of projects.

TRACS: What It Is Not

The Forest Service has an existing conservation framework in the form of plans, strategies and programs (e.g., the Northwest Forest Plan, Interior Columbia Basin Management Plan, National Forest Land and Resource Management Plans, Watershed Condition Framework, Interagency Special Status Sensitive Species Program, and the Aquatic Restoration Strategy). The intent of TRACS is not to replace any of these plans, programs, or strategies, but instead to provide wildlife biologists and botanists with a clear set of regional priorities for conservation, restoration and enhancement of wildlife and botany resources within the context of the larger FS conservation framework. TRACS is designed to have a variety of applications both inside and outside of the FS. It is not regulatory. The Strategy is not a substitute for existing planning efforts and it does not replace forest-level priorities.

Ecoregions

TRACS uses ecoregions (Figure 1-1) rather than national forests as the terrestrial unit for prioritization of species, habitats, and watersheds. Ecoregions are large areas of land or water with a geographically distinct assemblage of natural communities that 1) share most of their species and ecological dynamics, 2) share similar environmental conditions, and 3) interact ecologically in ways that are critical for their long-term persistence (<http://www.worldwildlife.org/science/ecoregions/item1847.html>).

The distribution of most species aligns more closely with ecoregional boundaries than with national forest boundaries. Ecoregions are also more effective units for capturing the ecological and genetic variability of conservation targets: species, communities, and systems (Groves et al. 2000). Furthermore, ecoregions provide a common management unit when working with other federal, state, and local agencies and the public.

TRACS ecoregions are based on Bailey (1995) (map scale 1:7,500,000), with boundaries slightly modified. The FS contracted The Nature Conservancy (TNC) to display results by 6th field Hydrological Unit Code (HUC6) sub-watersheds. But Bailey's terrestrial ecoregions do not follow watershed boundaries. Rather, they often follow elevation contours, which correspond to the average upper limit of

Nine ecoregions form the basis of the TRACS prioritization process:

- Canadian Rockies
- Columbia Plateau
- East Cascades/Modoc Plateau
- Klamath Mountains
- Middle Rockies/Blue Mountains
- North Cascades
- Pacific Northwest Coast
- Okanagan
- West Cascades

the dominant vegetation of an ecoregion. For these reasons, geographic units were created specifically for the FS terrestrial prioritization process to follow watershed boundaries where feasible. TNC worked from the bottom up, merging HUC6 sub-watersheds to approximate the 1:7,500,000 scale Bailey ecoregions. HUC6 sub-watersheds were split where necessary to conform as much as possible with the established ecoregions for the Pacific Northwest, or where they extended too far into an adjacent ecoregion.



Figure 1-1.

Overview of the TRACS Prioritization Process

The framework for the TRACS prioritization process was developed through work under a contract with TNC. The FS worked with TNC to identify Regional Priority Species based on a combination of NatureServe Ranks and percent of habitat on FS lands. The FS then developed additional criteria to identify Ecoregional Priority Species.

The FS also developed criteria to identify Ecoregional Priority Habitats for habitats that could be mapped by TNC and for others that could not be mapped at the regional scale.

TNC used their Ecoregional Assessment methodology (Groves et al. 2000, 2002) to analyze species, habitats, and watersheds across FS and all other lands in Oregon and Washington. The TNC methodology is a landscape prioritization process that incorporates species prioritization into a geographic analysis by ecoregions using watershed assessment units and an optimization tool, MARXAN (Marine Reserve Design Using Spatially Explicit Annealing) (Possingham et al. 2000). TNC conducted MARXAN analysis on HUC6 sub-watersheds within each ecoregion (a full description of the MARXAN analysis is provided in Appendix A). The following categories of targets were included in MARXAN:

- Regional Priority Species.
 - ◊ Element occurrences (species locations; EO) and modeled habitat for Priority Vertebrates (Appendix B).
 - ◊ Element occurrences for all G1-G3 and T1-T3 plants and invertebrates (no habitat distribution models were available) (Appendices F and H).
- FS habitats which could be mapped (Appendix I).
- Ecological systems - the ecosystem classification system defined by NatureServe (<http://www.natureserve.org/publications/usEcologicalsystems.jsp>).
- Forest Plan Management Allocations classified into Suitability Classes.

Socially/Economically/Culturally Important Plants were not included in the MARXAN analysis because it was not possible to map habitat for these species.

TNC provided the FS with a comprehensive database that included information by sub-watershed on element occurrences, vertebrate habitat, FS habitats, ecological systems, and MARXAN outputs. The TRACS watershed prioritization process was based on information on Priority Species and Habitats, and MARXAN outputs in the comprehensive database. MARXAN outputs included a watershed prioritization score. However, the watersheds identified as priorities by MARXAN did not necessarily meet the TRACS objectives for restoration and enhancement. The FS developed additional criteria using other MARXAN outputs to identify the final suite of Priority Watersheds by ecoregion (Figure 1-2).

Species Prioritization

Priority Vertebrates

A preliminary list of vertebrate species of conservation concern occurring on Forest Service land in Oregon and Washington was developed using the criteria listed below.

- Threatened, endangered, or sensitive species on the January 2008 Regional Forester's Special Status Species List.

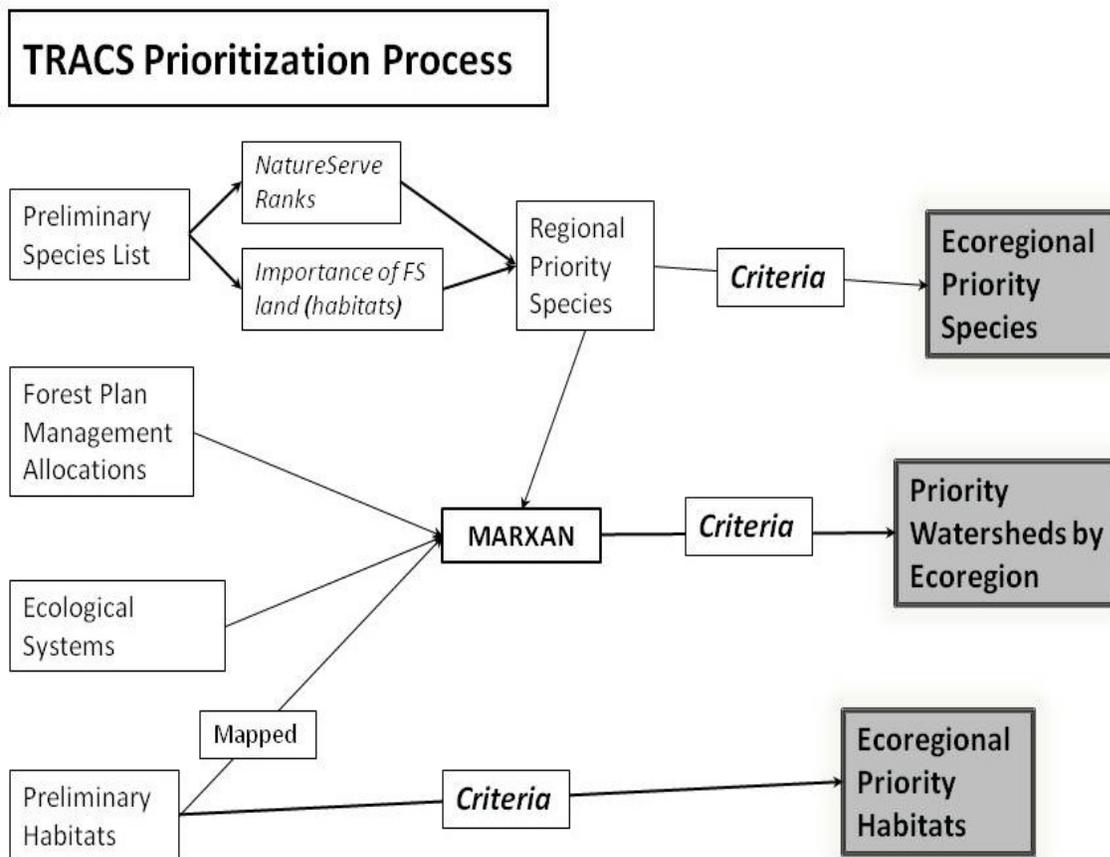


Figure 1-2. The process used to develop regional and ecoregional lists of Priority Species, Habitats, and Watersheds.

- Priority species in the Oregon and Washington State Comprehensive Wildlife Conservation Strategies.
- Species from TNC’s Ecoregional Assessments in Oregon and Washington.
- Management Indicator Species or other species with specific Standards and Guidelines in Land and Resource Management Plans (LRMPs).
- Species with documented viability concerns based on the following:
 - ◊ NatureServe Rank of G1 - G3 or S1 - S3 ([NatureServe Ranks](#)).
 - ◊ Identified on the U.S. Fish and Wildlife Service 2008 Birds of Conservation Concern (BCC) National Priority List.
 - ◊ Identified as a viability concern in the Interior Columbia Basin Ecosystem Management Plan (ICBEMP) Environmental Impact Statement (EIS) or Source Habitats analyses.
 - ◆ Species with a viability outcome of primarily 4 or 5 under the current condition scenario for eastern Oregon and Washington, or primary outcome 3 with a decline from an historical viability outcome of primarily 1 (FS and BLM lands only) in the EIS (Lehmkuhl et al. 1997).
 - ◆ Species with a population outcome of D or E under the current condition scenario, or outcome C with a decline from an historical outcome of A in Raphael et al. (2001).
 - ◆ Species for which Wisdom et al. (2000) concluded a negative change (>50%) in source habitats.
- Additional bird species not listed on the 2008 BCC list but with local threats as identified by the Partners in Flight Species Assessment Database. Bird species that receive a score of 5 for local threats (severe to extreme threats to conditions) or severe population decline were added to the preliminary list.
- Species that may be negatively affected by climate change.

The Nature Conservancy developed a step by step filter process to narrow the resulting preliminary list to identify Regional Priority Species. Federally listed and candidate species were automatically considered a priority because they are already known to be vulnerable to extinction.

The first step in the filtering process was to assign a combined element ranking of Very High (VH), High (H), Medium (M), or Low (L) to each species based on NatureServe global and state conservation status ranks. A combined element rank was calculated as shown in Table 1-1.

Table 1-1. First step of the prioritization process for vertebrate species. [NatureServe Ranks](#) were used in the ranking; G1-G5 are global ranks and S1-S5 are state ranks from Oregon and Washington Heritage Programs. A ranking of Very High indicates a species is imperiled both globally and at the state level.

	S1 - S2	S3	S4 - S5
G1 – G2	VH		
G3	H	H	
G4 – G5	M	M	L

The second step in the filtering process was to assign a regional rank of VH, H, M, or L to each species based on the species’ habitat distribution on FS land (Table 1-2).

Table 1-2. Second step of the prioritization process. Regional ranks were used to develop the list of Regional Priority Vertebrate Species. Species with >25% of their modeled habitat on FS land at the regional scale were identified as Regional Priority Vertebrates (dark grey cells).

Combined element rank	% of total habitat distribution on FS land			
	>50%	25 - 50%	10 - 25%	<10%
VH	VH	H	M	M
H	VH	H	L	L
M	H	M	L	L
L	M	L	L	L

The last step of the filtering process was to restrict the list to those species where the FS managed enough of the species’ habitat to potentially make a meaningful contribution to conservation of the species and its habitat. Using existing wildlife habitat models for the two states, the list was reduced to only those species with >25% of their modeled habitat on FS land at the regional scale (dark gray cells in Table 1-2). Species with a regional rank of L (and a few species ranked M but with <25% of habitat on FS land) were filtered out.

The result of these filtering processes is the list of Regional Priority Vertebrate Species (Appendix E).

Ecoregional Priority Species are a subset of the Regional Priority Species list, and were identified through a priority rating process based on a combination of the species’ vulnerability index and the species’ ecoregional importance. The vulnerability index is based on threats, life history vulnerability, and habitat vulnerability (Figure 1-3). Regional Priority Species with a priority rating of VH or H within an ecoregion were identified as Ecoregional Priority Species.

Vulnerability Index

The vulnerability index is a combination of a species’ threats, life history vulnerability, and habitat vulnerability. Life history vulnerability and habitat vulnerability were calculated based on the Species at Risk Advisor (SARA) process developed by Lehmkuhl et al. (2001).

TRACS Prioritization Process for Vertebrate Species by Ecoregion

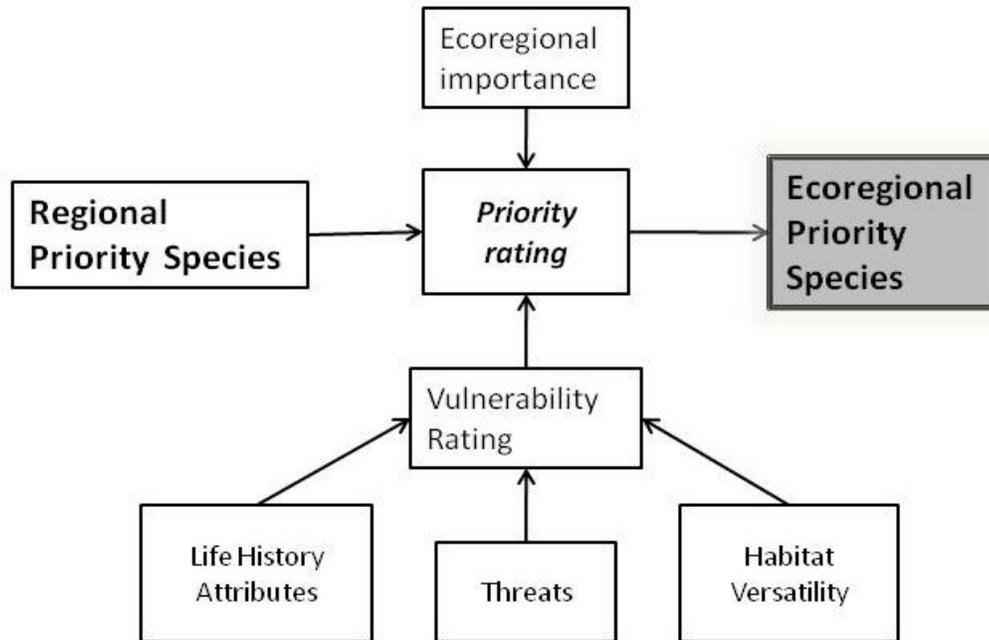


Figure 1-3. Process used to identify Ecoregional Priority Species. The shaded box is the result of the prioritization process.

Threats

Some species are not able to withstand or adapt to threats. These species often have life history attributes such as low reproductive capacity that influence their capability to deal with threats.

A threats score was calculated by ecoregion for each species using the International Union for Conservation of Nature (IUCN) threats classification system (<http://www.conservationmeasures.org/initiatives/threats-actions-taxonomies/threats-taxonomy>). Examples of threats include: disturbance from roads, recreation, or energy development; displacement or loss of habitat from wood harvest, grazing, severe fire, or invasive and problematic native species; direct mortality from roads, hunting, or collecting; and anticipated climate change impacts. The threats score for each species was the percent of the maximum potential threat score for the ecoregion; the higher the score, the more threatened the species. The threats score was developed as follows:

- A “1” was assigned to each Regional Priority Species and species of social or economic concern if the threat impacted that species.
- Each threat was rated in terms of the amount of influence the Forest Service has on mitigating or eliminating the threat. Ratings range from 0 (no potential to mitigate or eliminate the threat) to 4 (totally able to mitigate or eliminate the threat). For example, high intensity wildfire was rated as a 2, but prescribed fire was rated as a 4.
- Threats to species vary across Region 6, so threats were scored separately for each ecoregion. Rat-

ings range from 0 (not a threat in the ecoregion) to 3 (a major threat in the ecoregion). For example, grazing was given a rating of 0 for the Northwest Coast Ecoregion and a rating of 3 for the Middle Rockies/Blue Mountains Ecoregion.

- A threats score was calculated by:
 - ◇ Summing all weighted values (FS control x importance in ecoregion) to calculate the maximum potential value of all threats.
 - ◇ Summing weighted values (FS control x importance in ecoregion) for each species (e.g., 1 x weighted value if threat applies to the species).
 - ◇ Dividing the species threat score by maximum potential threat score.

Life History Vulnerability

Life history vulnerability was based on life history attributes: a weighted average of weighted sums of values based on SARA. Less vulnerable species score lower. It was assumed that habitat selection, habitat breadth, and population distribution were more important than inherent life history attributes when determining life history vulnerability. Life history attributes were assessed based on information from the Species at Risk chapter of Johnson and O'Neil's *Wildlife Habitat Relationships in Oregon and Washington* (2001). Examples of life history attributes include: reproductive capacity, dispersal ability, geographic range, population distribution, diet specificity, and body size.

A life history vulnerability score was calculated using the following formula:

$$\text{Life history vulnerability} = ((\text{vagility} + \text{aggregations}/2 + \text{diet} + \text{reproductive capacity})/4) + 2 \times \text{distribution} + \text{geographic range}$$

Habitat Vulnerability

The more habitat types and structural conditions a species uses (i.e., the more versatile it is), the less vulnerable it is to loss of a particular habitat. Thus, a habitat versatility index was developed to indicate habitat vulnerability, where a wider habitat breadth results in a lower vulnerability score. Habitat types, structural conditions, and special habitats were based on those classified and described in Johnson and O'Neil (2001). Johnson and O'Neil identified 24 habitat types and 45 structural conditions that occur in Oregon and Washington. The habitat type and structural versatility sub-scores were based on the percentage of those habitats and structural conditions used by each species.

Habitat versatility is a sum (habitat + structure + special habitats) based on criteria in SARA; the lower the score, the higher the habitat versatility and the lower the habitat vulnerability.

- Habitat type versatility – percent of habitat types used.
 - ◇ 10 – 0-25%
 - ◇ 7 – 26-50%
 - ◇ 4 – 51-75%
 - ◇ 0 – 76-100%
- Structural versatility – percent of structural conditions used.
 - ◇ 10 – 0-25%
 - ◇ 7 – 26-50%
 - ◇ 4 – 51-75%
 - ◇ 0 – 76-100%
- Special Habitats – Developed in addition to the SARA habitat type and structure class.
 - ◇ 10 – A special habitat feature is required. Feature is rare on the broader landscape, or only

one type of a specific structure is acceptable, or multiple special habitats are needed (e.g., large snags, cold headwater streams, snags must be present along water bodies).

- ◇ 8 – A special habitat feature required but it is not rare, or more than one option will fulfill the life history need (e.g., bats that use snags or buildings).
- ◇ 4 – A special habitat feature is not required, but results in higher quality habitat (e.g., Red Tree Vole use of large branches).
- ◇ 2 – A species uses or shows preference for the special habitat, but it is not required to fulfill life history need (e.g., elk and deer use of meadows).
- ◇ 0 – No special habitats listed.

Ecoregional Importance

The importance of each ecoregion to a species was calculated by TNC ($[\% \text{ species' FS Region 6 habitat in ecoregion} \times \% \text{ habitat in ecoregion on FS land}]/100$) for all species that had mapped habitat. Habitat was mapped using wild-life habitat relationship models developed by Oregon Biodiversity Information Center (ORBIC), or maps were provided by the FS for some Socially and Economically Important Vertebrate Species (see Appendix B). Threatened and endangered species did not have an ecoregional importance score; all occurrences are highly important.

Priority Rating

The Priority Rating is based on a matrix that combines the vulnerability index with ecoregional importance (Table 1-3). Species with a priority rating of Very High or High in an ecoregion were identified as Ecoregional Priority Species (Appendix E).

Table 1-3. Priority Rating Matrix. Species with a priority rating of Very High (VH) and High (H) in an ecoregion were identified as Ecoregional Priority Species. TEC = Threatened, Endangered, and Candidate species.

Priority Rating	Ecoregional Importance			
	<5	5-15	15-25	>25 or TEC
Vulnerability Index				
>80	M	H	VH	VH
60-80	M	H	H	VH
40-60	L	M	M	H
<40	L	L	L	M

Socially and Economically Important Vertebrates

An initial list of Socially and Economically Important Vertebrates was identified based on the following criteria:

- Social or economic importance to the public, key FS partners, and FS Land and Resource Management Plans (LRMPs).
- Ongoing priority in Forest Service project work as demonstrated in the Wildlife, Fish and Rare Plants (WFRP) database.
- Listed as a priority species in the Oregon and/or Washington State Comprehensive Wildlife Strategies.

The initial list of Socially and Economically Important Vertebrates based on these criteria was reviewed by Forest wildlife biologists and revised based on their feedback. This list included 15 species and two species groups (waterfowl and furbearers). This list was further reduced to 10 species based on regional-scale economic, social, and cultural importance, past investment performance, and political sensitivity.

An analysis was completed with the assistance of a Forest biologist from each ecoregion to identify which species from this list were priorities for each ecoregion. The analysis was based on the following criteria:

- **Habitat** - a measure of the relative amount of suitable habitat in the ecoregion for the species in question.
- **Vulnerability Score** - rated using the TRACS vulnerability assessment, which emphasizes the importance of FS management on species that are more vulnerable to IUCN threats.
- **Economic Importance** - the relative economic importance of a given species to the national, regional, or local economies. This rating considers factors such as hunting and viewing interest, number of participants, horn hunting, etc.
- **Social Importance** - a measure of the presence of organized interest groups or advocacy base for each species within the ecoregion.
- **Cultural Importance** - recognizes the FS responsibility to maintain hunting and gathering opportunities and to meet obligations to provide for subsistence or other traditions.
- **Past Investment Performance** - a measure of past investment and leveraging of dollars on species as indicated through WFRP reporting.
- **Political Sensitivity** - a measure of political and management factors beyond the biological that result in added focus and attention to species, for example, bighorn sheep and domestic sheep interactions, elk habitat and tribal commitments, and mountain goat reintroductions. This also takes into consideration the complexities of different agencies co-managing the species and its habitats.

The Socially and Economically Important Vertebrates are listed in Appendix E.

Priority Plants

The plant prioritization process began with all sensitive vascular and non-vascular plants, fungi, and lichens (hereafter, “plants”) on the Regional Forester’s Special Status Species List for the Pacific Northwest Region (January 2008). This preliminary list included 543 species of state-listed, federally-listed, and FS sensitive species. Nature-Serve conservation ranks for the plants on this list ranged from G1 (critically imperiled) to G5 (globally secure), and state ranks in Oregon and Washington ranged from S1 (critically imperiled within state borders) to S5 (secure within state borders).

This broad list was refined into a provisional set of Regional Priority Plants. First, TNC assembled all element occurrence (EO) data in Oregon and Washington for these species, and summarized the number of EOs for each species on FS lands by ecoregion. Historical, unrankable, and taxonomically questionable taxa were not included in this analysis. The following criteria were then used to develop a preliminary list of Regional Priority Plant Species:

- Include all G1 - G2, T1 - T2 species with >25% of EOs on FS land (62 taxa).
- Include all G3 or T3 species with at least 3 EOs and >25% of EOs on FS land (59 taxa).
- Include all G4 or T4 lichen and bryophyte (moss and liverwort) species with at least 3 EOs and >25% of EOs on FS land (16 taxa).
- Remove all remaining G4 and G5 species, regardless of distribution.
- Include all federally-listed and candidate species regardless of their rank or percentage of EOs on FS land (17 taxa).

From this list, Ecoregional Priority Species were then selected by evaluating the preliminary regional priorities for Forest Service Importance (FS IMP) >10 in each ecoregion. FS IMP is a measure of the importance of populations in any given ecoregion to the overall occurrence of that taxon in Region 6: it ranges from 0-100, where 100 indicates that all occurrences in the Region occur on FS land and in one ecoregion. Also, species with a FS IMP >10 for any

ecoregion (i.e., 10% of the regional all-lands distribution) became priorities in that ecoregion, regardless of the percentage of EOs on FS land. This step added 12 more species with NatureServe ranks of T1-T3. These 12 species were added to the Regional Priority List bringing that number to 166, which includes 14 fungi, 18 lichens, 14 bryophytes, and 120 vascular plants.

In summary, the process began with a list of rare plants, which was then restricted to very rare plants—most of them endemics—that occur in significant numbers on FS lands. This list was then prioritized by ecoregion based on the importance of each ecoregion to their distribution. The aggregation of Ecoregional Priority Plants became the Regional Priority List.

The list of Ecoregional Priority Plants is in Appendix F.

Socially/Economically/Culturally Important Plants

A regional list of 43 plants of social, economic, or cultural importance was developed using the following criteria:

- Priority species in FS LRMPs.
- High social or economic importance to the public for food, crafts, medicinal uses, or landscaping.
- High cultural importance to tribal entities.

Species regulated by the FS Special Forest Products Program or found in Land and Resource Management Plans are included, as are those commonly used by American Indian tribes. Information came from a variety of sources: Forest Service databases and documents; online databases; and discussion with the tribes, Region 6 Forest Botany staff, and Regional Office Natural Resource staff. Plant species that are already identified as Priority Plants are not reconsidered here.

The list of Socially/Economically/Culturally Important Plants by ecoregion is in Appendix G.

Priority Invertebrates

The Regional Forester's Special Status Species List (January 2008) was used as the initial list for invertebrates. TNC assembled all EO data available for these species in Oregon and Washington, intersected these data with FS lands, and summarized the number of EOs for each species by ecoregion.

Because invertebrates are under-surveyed, it was not possible to obtain a realistic percentage of the distribution of invertebrates on FS lands based on EOs. Therefore, all G1, G2, S1, and S2 invertebrate species on the Regional Forester's List, except those that are completely aquatic, were included as priorities regardless of EO data. Regional Priority Invertebrate Species that had documented occurrences in an ecoregion were considered Ecoregional Priorities.

The list of Regional Priority Invertebrates by ecoregion is in Appendix H.

Habitat Prioritization

A preliminary list of 48 habitats of concern was generated by searching all of the Forest Land and Resource Management Plans (LRMPs) for wildlife and botanical habitat types that were specifically identified in Forest Plan components. This preliminary list was reviewed for inclusiveness by Forest wildlife biologists and botanists.

The preliminary list was cross-walked for mapping purposes with several information sources including the Nature-Serve Ecological System Classification (<http://www.natureserve.org/publications/usEcologicalsystems.jsp>), the National Wetland Inventory and National Hydrography Dataset, and the Gradient Nearest Neighbor (GNN) for late-seral habitats. Of the 48 habitats initially identified, 18 could be mapped at the regional scale. Certain habitats could not be mapped at the regional scale (such as caves, bogs, fens and cliffs).

Ecoregional Priority Habitats were identified from both mapped and unmapped habitats. A list of 21 Priority Habitats by ecoregion was identified from the preliminary list of habitats using the following criteria:

- Relative importance of the ecoregion to the habitat.
- Threats.
- Importance to Priority Vertebrates, Plants, and Invertebrates.
- Relative rarity.
- Departure from historical conditions.

The list of Regional Priority Habitats by ecoregion is in Appendix I.

Watershed Prioritization

Two types of TRACS Priority Watersheds were identified to reflect the most important areas in Region 6 for Priority Species and Habitats (Figure 1-4). The **Integrated Priorities Watersheds** are areas that represent high value for biodiversity; high value for groups of Priority Vertebrates, Socially and Economically Important Vertebrates, Priority Plants, or Priority Habitats; or high value for combinations of these. The **Habitat Conservation and Restoration Watersheds** are the most important areas in Region 6 for six Priority Habitats: Aspen, Late-seral Low- and Mid-elevation Douglas-fir – Western Hemlock, Eastside Late-seral Mixed Conifer, Southeast Late-seral Mixed Conifer, Late-seral Ponderosa Pine, and Oak and Pine. These habitats were selected because each is a high priority for restoration based on both current work occurring in the region and their importance for the Strategy's Priority Species. Some watersheds meet the criteria for both Integrated Priorities and Habitat Conservation and Restoration.

The watershed prioritization process described below used information in the comprehensive database assembled by TNC. TNC summarized data and MARXAN outputs from sub-watersheds (6th field HUCs) to the watershed scale (5th field HUCs or HUC5s) to create Analysis Units (AU) for TRACS. In most cases, an AU is equivalent to a HUC5 watershed; however, if a HUC5 is split between two ecoregions, each portion is considered a separate AU.

Three outputs from MARXAN were used to identify TRACS Regional Priority Watersheds: the biodiversity score, relative abundance values, and relative abundance scores. The biodiversity score is equivalent to “conservation utility,” which is a function of both the irreplaceability of an AU and its suitability for conservation. Irreplaceability indicates the relative biodiversity value of an AU, based on targets. Suitability is an indication of the cost or relative likelihood of successful conservation, based on suitability classes that are combinations of FS land management allocations or other ownerships.

Individual relative abundance (RA) values were calculated for each Priority Habitat and Species. The individual RA value is a unit-less measure of how prevalent the target species or habitat is in the AU relative to other AUs in the planning area. Individual RAs greater than 1 indicate that the target is more prevalent in the AU than would be expected in another AU of similar size. Individual RAs less than 1 mean the target is less prevalent than expected. Individual RAs range from 0 to 8.9; the higher the individual RA the more important that AU is to the species or habitat. Additional information on RA values is provided in Appendix D.

Group RA scores were calculated for groups of Priority Species and Habitats using individual RA values. Priority groups included: vertebrates, socially and economically important vertebrates, plants, and habitats. The group RA scores were calculated by summing the individual RA values for Ecoregional Priority Species and Habitats among groups, and normalizing them for AU size. The group RA scores for socially and economically important vertebrates were based on the regional priorities instead of ecoregional priorities; the prioritization process for this group was finalized after Group RA scores were calculated. Group RA scores range from 0 to 1000. An integration score was calculated for each AU by summing the group RA scores and the biodiversity score.

The following criteria were used to identify Regional Priority Watersheds:

1. Include only those AUs with >25% FS land.
2. Integrated Priorities Watersheds met one or more of the following conditions:
 - One of the top 10 AUs with a TNC biodiversity score of ≥ 90 .
 - The AU had one of the top 10 group RA scores within any priority group (except invertebrates).
 - The AU had one of the top 30 integration scores.
3. Habitat Conservation and Restoration Watersheds were selected based on individual RA values of ≥ 2.0 , for the following habitats:
 - Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock (nine AUs, RA ≥ 2.0).
 - Eastside Late-seral Mixed Conifer (nine AUs, RA ≥ 2.3).
 - Southeast Late-seral Mixed Conifer (10 AUs, RA ≥ 2.9).
 - Late-seral Ponderosa Pine (10 AUs, RA ≥ 2.5).
 - Oak and Pine (six AUs, RA ≥ 2.0).
 - Aspen (12 AUs, RA ≥ 2.6).

Priority Invertebrates were not included in the watershed prioritization process due to the patchiness in EO data that disproportionately weighted areas where a higher level of surveys have been conducted. Socially/Economically/Culturally Important Plants were also not used for watershed prioritization because these species were not in the MARXAN analysis and database provided by TNC since their ranges could not be mapped.

Many Priority Watersheds were split between two ecoregions, resulting in two AUs. This situation resulted in the following scenarios:

Each AU in the watershed was identified as a priority in both ecoregions. In this case, each AU may be the same type of priority, or if one AU is a Habitat Conservation and Restoration Watershed and the other an Integrated Priorities Watershed, it was identified as “Both.” In either case, Priority Species and Habitats are listed separately by ecoregion in the watershed description.

One AU of the watershed was identified as a priority in one ecoregion, but not the other. In this case, the entire watershed was considered a priority, and the description of the watershed includes Priority Species and Habitats from both AUs. If the non-priority AU contained less than 25% FS land, the priorities for the watershed can be applied for project planning and implementation in that area. However, the AU is not identified as a priority in the database or on maps, and separate lists of Priority Species and Habitat for that AU are not provided in the watershed description.

The Regional Priority Watersheds are shown in Figure 1-4. Information on Priority Vertebrates, Plants, Invertebrates and Habitats within each Priority Watershed by ecoregion is in Appendices J-R.

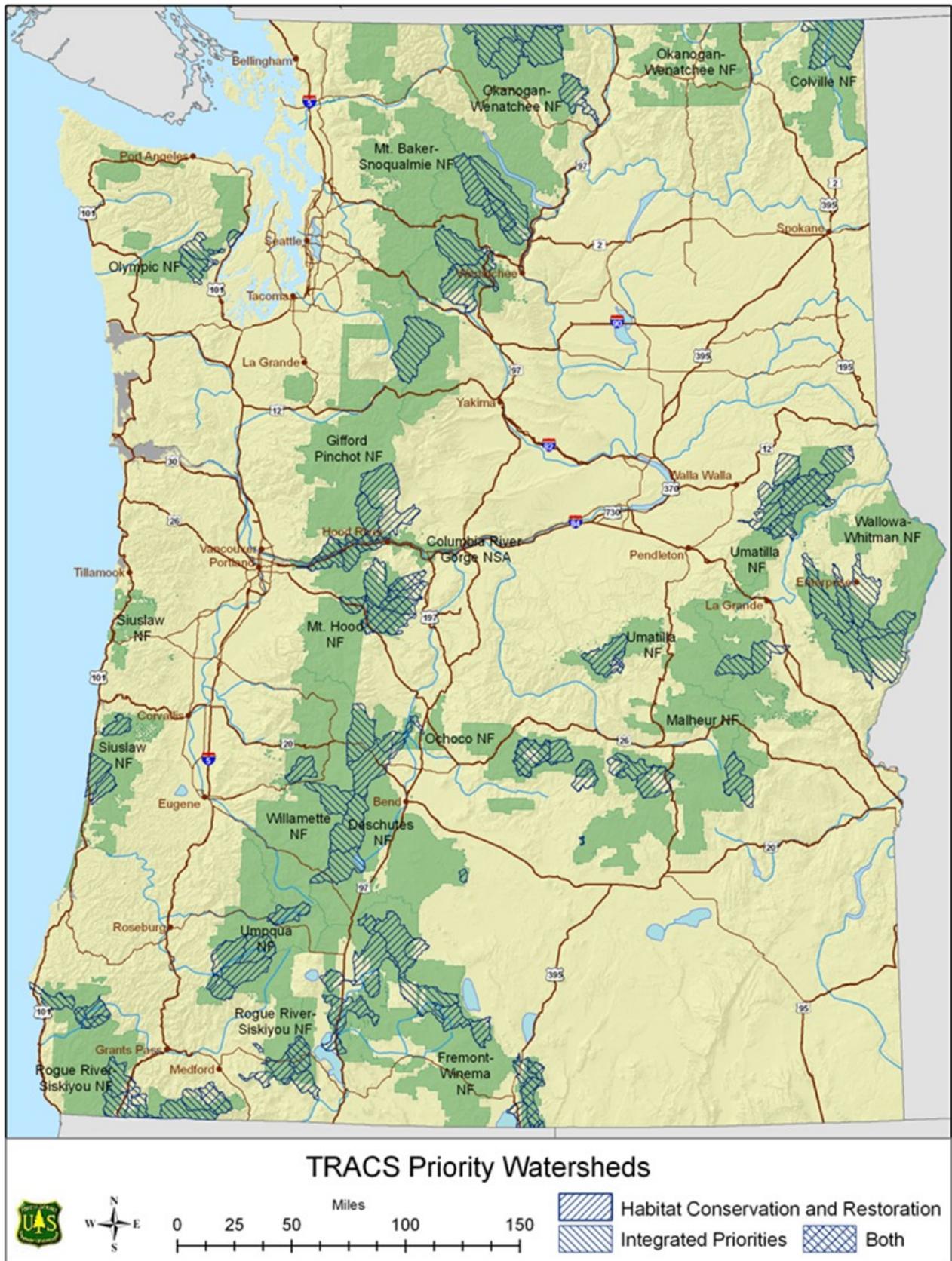


Figure 1-4.

Chapter 2: Implementation of TRACS Priorities

Introduction

This Terrestrial Restoration and Conservation Strategy is an exciting opportunity to use newly developed Regional priorities to guide Forest Service program and project planning toward broad conservation goals. This is the first time a comprehensive tool has been available to identify the most important terrestrial species, habitats, and watersheds within landscape-level ecoregions throughout a Forest Service region.

Chapter 1 presented the science and rationale behind the development of the TRACS priorities, and described them in detail by ecoregion and watershed (see also Appendices). Chapter 2 explores how to use this information to implement the TRACS vision of strategic conservation, restoration, and enhancement to safeguard high-quality habitat and improve less healthy ecosystems and habitats: in other words, “Protect the best and restore the rest.” TRACS implementation fundamentally relies on identifying the places where animal, plant, habitat, and watershed priorities exist or overlap, and can be conserved, restored, or enhanced through collaboration and partnerships. This chapter provides the framework for translating the TRACS vision of broad incorporation of Regional biotic priorities into multidisciplinary forest work. Chapter 2 is organized into the following sections:

Collaboration and Integration – Explores the role of wildlife and botany program leadership, and integration and collaboration with internal and external partners to achieve TRACS goals.

Data and Tools – Describes spreadsheets and GIS-based tools that make the regional biotic data available in various ways for planning projects and developing conservation strategies.

Examples – Presents animal, plant, and habitat examples to suggest ways to use regional and ecoregional TRACS priorities to conserve and restore healthy ecological systems in the right places across the Region.

Tracking Accomplishments – Outlines how to use the Wildlife, Fish and Rare Plants database (WFRP) to track conservation, restoration, and enhancement of TRACS priority elements.

Final Thoughts – Provides a summary and a proposed schedule for revising TRACS.

Collaboration and Integration

TRACS success depends on working collaboratively with both internal and external partners to incorporate TRACS priorities into Forest Service programs and projects. Wildlife biologists and botanists will lead the way by incorporating Regional priorities into all aspects of their programs of work. Biologists, botanists, and ecologists will engage others and initiate joint projects that capitalize on multiple funding sources and the complementary expertise that partners and other disciplines offer. The plant and animal resource specialists in the Forest Service will be in the lead as TRACS matures.

A collaborative approach builds commitment to partnership and ownership of the results. It also helps different groups, organizations, and individuals find common interests and leverage limited resources to get work done. It is about doing more together than anyone can do alone. In addition, collaborative partnerships build bridges between different interests, and expand conservation efforts across tradi-

tional lines of ownership and jurisdiction, strengthening all parties in the process and building support for FS activities and the resources. Partnerships and collaborations are increasingly viewed in the Forest Service as a way to navigate the competing demands of multiple use, get stakeholders on different sides of issues to negotiate and compromise, and promote a shared vision. TRACS biotic priorities appeal to many along the entire political spectrum, and can serve as a cornerstone of agreement and catalyst for action.

Each year, through collaborative efforts, the Region 6 Botany, Wildlife, and Threatened, Endangered, and Sensitive Species Programs complete several hundred on-the-ground restoration projects. Both internal and external partners play a critical role in the success of these accomplishments through funding and in-kind contributions as well as expertise, technical skills, and enthusiasm. Collaboration centered on TRACS priorities will help provide focus for future partnership efforts on strategic regional priorities.

To help partnerships maximize their effectiveness at achieving shared goals:

- Look for mutual objectives that align with TRACS conservation, restoration, or enhancement.
- Consider whether habitat restoration or species conservation needs extend onto adjacent lands.
- Work whenever possible at the landscape level on large projects that offer economies of scale and are consistent with the current focus on Integrated Resource Restoration, watershed-level improvement, and Collaborative Forest Landscape Restoration.
- Seek partners with resources that compliment Forest Service strengths.

Internal partners such as staff in vegetation management, silviculture, fire/fuels, recreation, or engineering are natural collaborators since they conceive and implement large ground-disturbing and habitat-altering projects that profoundly affect plants, animals, and habitats. Partnership with them can be particularly fruitful, as long as certain conditions are met: Can mutual benefits be identified? How could addressing a TRACS priority also help accomplish their objectives or achieve assigned targets? Would their involvement further a more comprehensive or creative approach to a critical restoration need, or reach larger goals and objectives? Would collaboration on a TRACS priority help move natural resource programs toward implementing the Integrated Resource Restoration concept?

TRACS priorities in concert with collaboration and partnerships are a strong foundation for responding to emerging issues and challenges. A few examples of collaborative opportunities where TRACS can be used include:

- **Climate Change**—Issues related to [climate change](#) include shifts in temperature, water, and vegetation, and the consequent effects on wildlife and plant distribution and abundance. Climate change is a threat category that was used to prioritize TRACS vertebrate species and habitats. Information in TRACS can be used to coordinate with other agencies on landscape-scale responses to climate change. Two spreadsheets are available at O:\NFS\R06\Project\NR\TRACS2011\Spreadsheets (*PriorityHabitatThreatsXEcoregion.xlsx* and *PriorityVertebratesThreatsXEcoregion.xlsx*) to help identify priority species and habitats that are threatened by climate change.
- **Collaborative Forest Landscape Restoration**—Congress established the [Collaborative Forest Landscape Restoration Program](#) (CFLRP) under Title IV of the Omnibus Public Land Management Act of 2009. The purpose of the program is to encourage collaborative, science-based ecosystem restoration on priority forest landscapes. The many CFLRP projects in Region 6 are a method for integrating a variety of priorities, including TRACS, watershed restoration, supporting sustainable and fire-adapted ecosystems, and an all-lands approach.
- **Wildland Fire Management**—This effort seeks solutions for [wildland fire management](#) issues. Using TRACS tools and data, projects designed to reduce hazardous fuels and wildfire risk can also address Regional restoration priorities for TRACS species, habitats, and watersheds by looking at where these priorities overlap.

- **Minimum Roads Analysis**—Nation-wide regulations were established through the Travel Management Rule in 2001 that require the responsible official on each National Forest System (NFS) unit to “identify the minimum road system needed for safe and efficient travel and for administration, utilizations, and protection of NFS lands” (36 CFR 212.5). The purpose of the Minimum Road System Strategy is to outline how the Region intends to complete this work and how the outcomes of the process will be used and integrated with other programs and initiatives. TRACS should be a primary consideration when completing a Minimum Road Analysis. Roads are a major threat to priority species and habitats. For example, open roads cause disturbance to 52% of the TRACS Priority Vertebrate Species. Information in TRACS databases can be used to identify areas that are most important to species and habitats most affected by roads, as well as areas where access is important to conduct habitat restoration efforts.

Linkage of TRACS to Other Assessments and Programs

TRACS identifies opportunities to restore wildlife habitat and conserve species, but the greatest cumulative benefits will be realized by working in places where related priorities—often identified by other Forest Service collaborators or longtime partners—occur. GIS can pinpoint these places. The following examples of landscape-level assessments and Regional program priorities uncover potential collaborations to reach shared conservation and restoration goals. Forest-level watershed assessments often complement TRACS Regional-level priorities as well, so TRACS funding can augment forest resources in these places.

The Nature Conservancy Ecoregional Priorities

Figure 2-1 shows the high level of overlap between the TRACS Priority Watersheds and priority areas identified by The Nature Conservancy in their Ecoregional Assessments for Oregon and Washington (http://east.tnc.org/reports/all_assessment_docs). Each of the TNC Ecoregional Assessments contains a portfolio that provides more details about the sites that overlap with TRACS priority watersheds. They have also developed interactive maps that display detailed data for specific locations (http://maps.tnc.org/web_maps.html). TNC identifies many “targets” in their portfolios that are also TRACS Priority Species and Habitats. TNC views these areas as opportunities for strategic collaboration among multiple stakeholders to conserve sites with high biodiversity values. The intent is to use local expertise (including federal, provincial, state, local, private, and non-governmental organizations) to actually delineate the sites, and guide planning and management for conservation. Local and state TNC offices are the best initial contacts for coordinating actions in these overlapping areas.

Oregon Conservation Strategy Conservation Opportunity Areas

Many of the Conservation Opportunity Areas identified in the Oregon Conservation Strategy (Oregon Department of Fish and Wildlife 2005) overlap with TRACS priority watersheds (Figure 2-1). The Oregon Conservation Strategy (<http://www.dfw.state.or.us/conservationstrategy>) provides a blueprint and action plan for the long-term conservation of Oregon’s native fish and wildlife and their habitats through a voluntary, statewide approach to conservation. The Strategy was developed by the Oregon Department of Fish and Wildlife (ODFW) with the help of a diverse coalition including scientists, conservation groups, landowners, extension services, anglers, hunters, and representatives from agriculture, forestry and rangelands. The Conservation Opportunity Areas were identified to focus investments on priority landscapes to increase the likelihood of long-term success over larger areas, improve funding efficiency, and promote cooperative efforts across ownership boundaries.

TRACS Priority Species and Habitats in Priority Watersheds that overlap with these Conservation Opportunity Areas are a good starting point in coordinating with ODFW on joining or initiating conservation and restoration actions on these and adjacent lands. The newsletter “[On the Ground: The Oregon Conservation Strategy at Work](#)” is posted on the Oregon Conservation Strategy website (see link above) and contains information on the variety of projects being conducted by ODFW with partners.

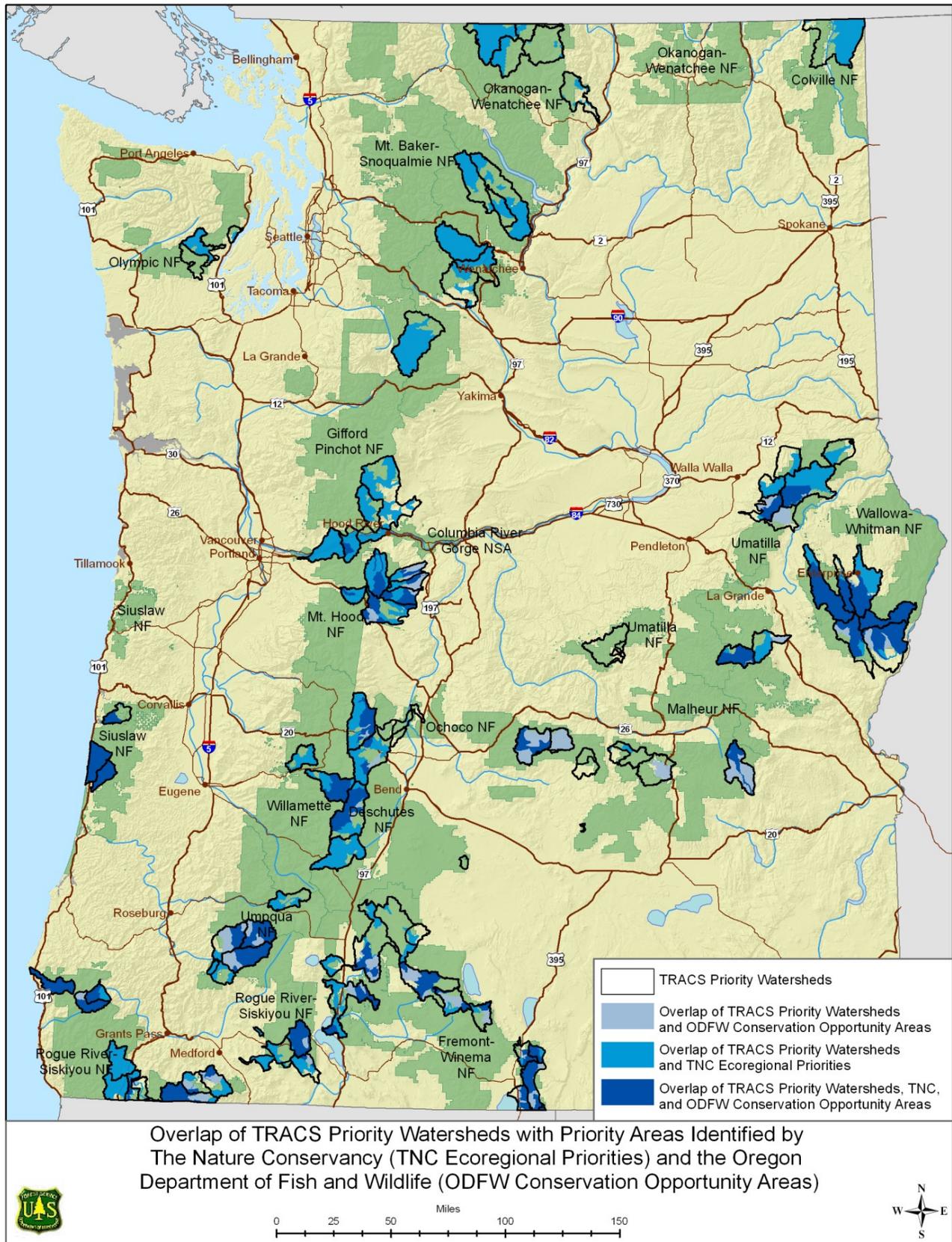


Figure 2-1.

Landscape-level Connectivity Projects

Two landscape-level connectivity projects in Oregon and Washington are also good opportunities to explore partnerships for linking TRACS priorities with existing efforts beyond Forest Service boundaries.

ODFW and the Oregon Department of Transportation (ODOT) initiated a partnership in 2006 for the development of a Wildlife Movement Strategy in Oregon (http://www.dfw.state.or.us/conservationstrategy/wildlife_connectivity.asp). This Strategy builds on the successful collaborative approach of the Oregon Conservation Strategy by partnering with major land-management agencies crossed by state highways, such as the FS, Oregon Department of Forestry, and Bureau of Land Management. The mission of the Movement Strategy is to address wildlife passage and habitat permeability in the state of Oregon via coordinated interagency partnerships. The broad-scale effort will identify and address animals' movement needs through a variety of voluntary approaches including transportation project scoping, project implementation, conservation or restoration.

The mission of the Washington Connected Landscapes Project is to promote the long-term viability of wildlife populations in the state through a science-based, collaborative approach that identifies opportunities and priorities to conserve and restore habitat connectivity. It is a voluntary public-private partnership between state and federal agencies, universities, tribes, and non-governmental organizations co-led by the Washington Department of Fish and Wildlife (WDFW) and the Washington Department of Transportation (WSDOT). The [statewide analysis](#) conducted by the Washington Wildlife Habitat Connectivity Working Group (2010) quantifies current connectivity patterns and provides the foundation for analyses of connectivity at the statewide, ecoregional, and local scales. A primary product of the statewide analysis is a set of maps that depict linkage networks, including areas of suitable habitat and the best remaining linkages connecting them.

Interagency Special Status/Sensitive Species Program

A valuable resource for many of the TRACS Priority Species is the Interagency Special Status/Sensitive Species Program (ISSSSP), which focuses on regional-level approaches for FS and Bureau of Land Management (BLM) rare species in Oregon and Washington. The FS species addressed by the ISSSSP are from the Regional Forester's Special Status Species List, and many of these species are also TRACS priorities. The ISSSSP maintains a comprehensive web site (<http://www.fs.fed.us/r6/sfpnw/issssp>) with species fact sheets, conservation assessments and strategies, conservation planning tools, and inventory and monitoring protocols. There are also reports on inventory efforts for many species. The web site can be easily searched using the "Index by Species" to access information on a specific TRACS Priority Species.

Several ISSSSP Work Groups address priority TRACS species, including the Mardon Skipper, Oregon Spotted Frog, Columbia Spotted Frog, White-headed Woodpecker, and Lewis' Woodpecker. These work groups identify current information gaps for these species, and offer ideas for high priority projects to address their conservation and management. Generally, ISSSSP staff provides leadership for these work groups and their contact information can be found on the web site. The ISSSSP supports forests by funding proposals to work on sensitive species. TRACS Priority Species that are also sensitive species could be considered in proposals for field studies, analysis of existing data, mapping/spatial analysis, modeling, inventory, monitoring, taxonomy, meta-analysis of existing literature, species fact sheets, conservation assessments, conservation agreements, conservation strategies, and restoration or conservation actions.

Landscape Treatment Designer Program

TRACS data and priorities can also be incorporated into decision support tools such as the Landscape Treatment Designer (LTD) program (Ager et al. 2012) to help achieve multiple restoration objectives in high priority areas, as well as to understand resource trade-offs among alternative fuel treatment strategies. An overview and example applications of LTD can be found at the following website: www.arcfuels.org/ltd.

Watershed Condition Framework

The national Watershed Condition Framework (WCF) was developed to address watershed restoration needs. It principally estimates conditions and processes directly affecting water quality, quantity, and aquatic life forms (<http://www.fs.fed.us/publications/watershed/>). TRACS priorities can help inform the terrestrial restoration needs in watershed action plans completed or being developed under the WCF where priorities overlap (Figure 2-2).

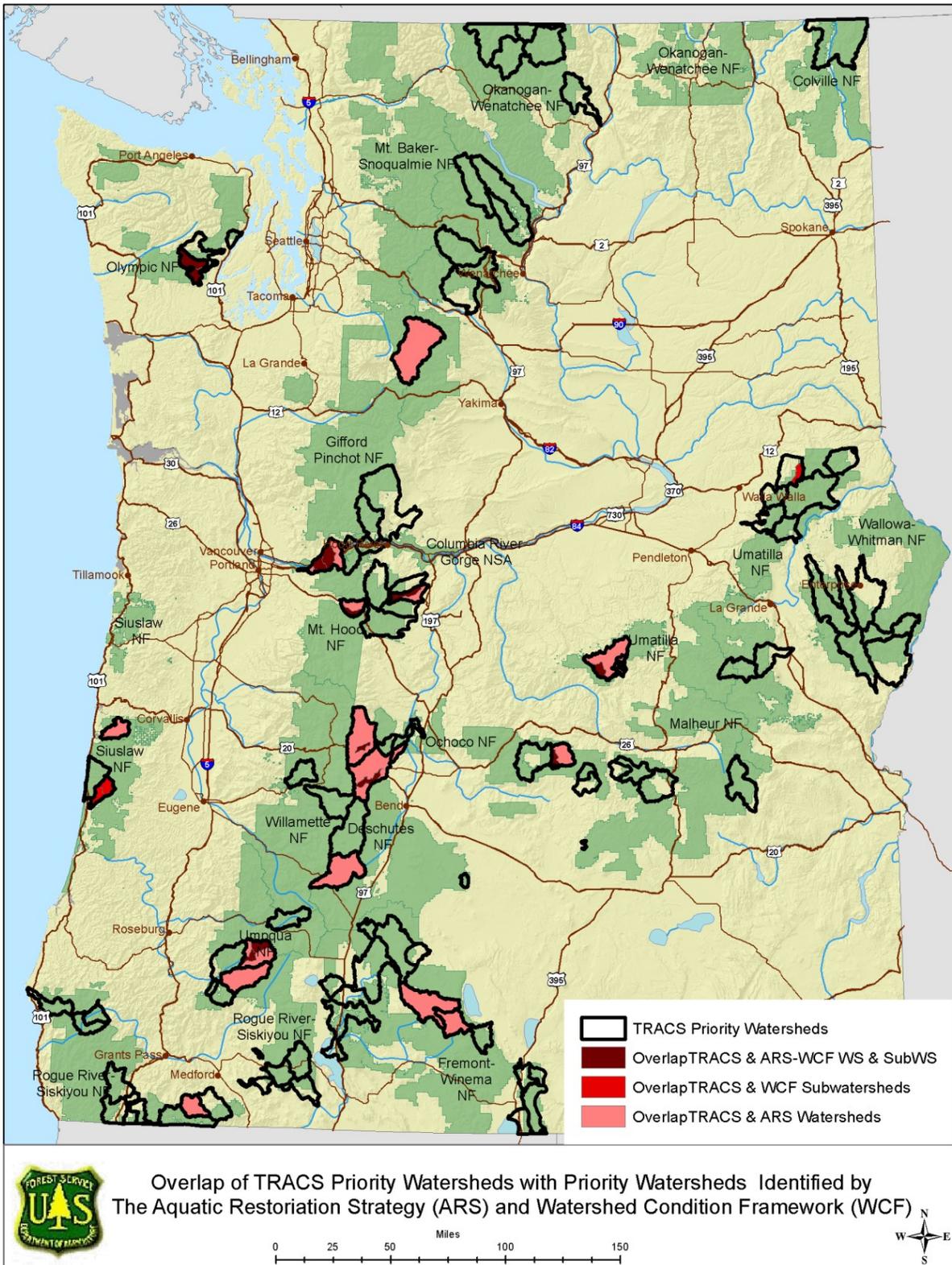


Figure 2-2.

Terrestrial Condition Assessment

The Terrestrial Condition Assessment (TCA) is being developed as a terrestrial ecosystem companion to the WCF. The TCA aims to evaluate, map, and interpret key indicators of terrestrial conditions, and contribute to a national evaluation of ecosystem maintenance and restoration priorities. The TCA will address present ecosystem conditions, processes, and current and potential future stressors using Land Type Associations as the basis for the analysis. TRACS will be used in concert with the TCA to identify especially high priority areas for restoration.

Data and Tools

The TRACS prioritization process resulted in a large dataset that is available for planning and assessment at the Forest and District levels. The data were developed by The Nature Conservancy (TNC; Appendix A) and provided by sub-watershed (HUC6) to the FS as a geodatabase. The FS then modified the geodatabase with additional analyses, and worked with a contractor to combine the sub-watershed data from TNC into watersheds (HUC5). The database provided the foundation for developing the TRACS priorities. These data are available on the T drive in both file and personal geodatabases for use with ArcMAP.

A number of appendices provide summarized data from the geodatabase. The appendices contain all the information necessary to implement TRACS. However, several tools are available for those who wish to access more information for use in planning projects (Table 2-1). These tools include: an Excel spreadsheet that provide summaries of the data, an Access database, and a Query Tool for use in ArcMAP. The complete geodatabase is also available.

Additional data were synthesized on habitat relationships, threats to species and habitats, and vulnerability assessments. This information was used to prioritize species and habitats and is available in Excel spreadsheets.

The databases and other information provided on TRACS priorities do not contain spatial data with the specific location of priority habitats and conditions. Forest and District staffs have the on-the-ground knowledge of species and habitat locations, or can consult corporate databases like the FS Natural Resources Information System, and should use this local knowledge in concert with the TRACS data.

Table 2-1. Comparison of TRACS data sources.

Data source	Requires ArcGIS	HUC5 Data	HUC6 Data	Forest Service Lands	All lands	Query Tool	Spatial Display capability	Include Priorities Without RAs*
Appendices		X		X				X
Excel Spreadsheet		X		X				X
Access Database		X	X	X				
Personal Geodatabase	X	X	X	X		X	X	
File Geodatabase	X	X	X	X	X		X	

* Relative Abundance (RA)

Description of Appendices

A separate appendix for each ecoregion contains an overview; lists of Priority Species, Habitats, and Watersheds; and detailed descriptions of each Priority Watershed (Appendices J – R). Each appendix provides:

- A description of the ecoregion with a link to additional information.
- Forests included in the ecoregion.
- The percentage of lands by management class.
- A list of the TRACS Priority Watersheds in the ecoregion.
- A map of the ecoregion showing locations of the Priority Watersheds.
- Lists of TRACS Priority Species and Habitats for the ecoregion.
- A description of each Priority Watershed in the ecoregion, including reasons for designation and a list of Priority Species and Habitats with their corresponding RA values.

RA values for Priority Vertebrates and Socially or Economically Important Vertebrates are based on modeled habitat only. Element occurrences for these species are available in the spreadsheets and geodatabases.

Spreadsheet

An Excel spreadsheet was developed for users who do not want to use Access or ArcMAP to query TRACS data. The spreadsheet (*PriorTargetsRAPlus1.xlsx*) allows the user to quickly identify information on Priority Species, Habitats and Watersheds that can be used in project planning. The spreadsheet was developed by querying the Access database that accompanies the personal geodatabase, and only includes data at the HUC5 scale. The spreadsheet has a “Key” tab that describes the data fields.

The spreadsheet is sorted by RA value (sort order can be changed by the user), and can be filtered by species, watershed, ecoregion, taxonomic group, priority taxa group, or RA value. Note that filtering the spreadsheet requires using the scroll bar on the right to scroll to the top of the list of filtered data. Only watersheds that include some Forest Service lands are shown, and the targets listed are priorities in that ecoregion with RA \geq 1. The spreadsheet is located on the O drive (*O:\NFS\R06\Project\NR\TRACS2011\Spreadsheets*).

Geodatabases

Personal Geodatabase, Access Database, and TRACS Query Tool

The personal geodatabase includes a minimal data set just for AUs that include at least some FS lands. This database is in MS Access (*TRACS_USFS_only_APR_2012.mdb*) and can be imported into an ArcMAP project (mxd) or opened and queried in Access.

The TRACS Query Tool (see Appendix C for how to load and use this tool) accesses the personal geodatabase and

Relative Abundance (RA) Values

Individual RA values are useful in determining ideal watersheds for species and habitat conservation and restoration: look for watersheds with high target RA, especially where multiple targets overlap in great abundance.

Individual RA values derived from the TNC MARXAN analysis are a key piece of the data available for Priority Species and Habitats, although they were calculated for all targets where possible. The individual RA value is a unitless measure of how prevalent the target species or habitat is in the AU relative to other AUs in the ecoregion. Individual RAs measure target density in a watershed, thus an RA of 1 indicates the watershed has the expected density for that ecoregion. RA >1 indicates that the target is more prevalent in the AU than would be expected in another AU of similar size in the same ecoregion, and RA <1 means the target is less prevalent than expected. Individual RAs range from 0 to 8.9; the higher the individual RA the more important that AU is to the species or habitat in that ecoregion. Locally endemic species, such as most Priority Plants, will tend to have higher RAs; more widely distributed species, such as Socially or Economically Important Vertebrates, will tend to have lower RAs.

See Appendix D for a complete discussion of RA values.

allows users to filter data and display the results in ArcMAP. Data are available at both the HUC6 and HUC5 scale (AU_HUC6_R6 and AU_HUC5_R6 layers). The Query Tool can be used in ArcMAP via Citrix or by desktop application.

Using the Query Tool, data can be queried and summarized by individual national forests or for all Forests in Region 6 at either the HUC5 or HUC6 scale. Two query forms are available: a Target Query (Figure 2-3) and a Management Query (Figure 2-4).

The Target Query (Figure 2-3) allows the user to locate and map watersheds where Priority Habitats or Species occur by Forest or ecoregion. The information can be filtered by target group, taxonomic group, individual species or habitats, and RA values. The user can also create and export tables of all species, Priority Species, and habitats within a specific geographic area (forest, watershed, or ecoregion).

The Management Query (Figure 2-4) is similar to the Target Query, but allows the user to determine the percent of a watershed or multiple watersheds that occurs in different Management Classes. The list of watersheds can be filtered by Priority Watersheds only, ecoregion, % Marxan Priority Score, or HUC5 Relative Abundance.

oid	AUSPATID	Forest	Watershed
1	427	Deschutes National Forest	Jack Creek-Williamson River
2	427	Deschutes National Forest	Jack Creek-Williamson River
3	427	Deschutes National Forest	Jack Creek-Williamson River
4	427	Deschutes National Forest	Jack Creek-Williamson River
5	389	Deschutes National Forest	Potter Canyon-Deschutes River
6	385	Deschutes National Forest	Squaw Creek
7	385	Deschutes National Forest	Squaw Creek
8	385	Deschutes National Forest	Squaw Creek
9	385	Deschutes National Forest	Squaw Creek

Figure 2-3. Target Query Form

oid	AUSPATID	Forest	Watershed	Priority Watershed
1	430	Fremont-Winema National Forests	Upper Sycan River	Conserve Restore

Figure 2-4. Management Query Form

The personal geodatabase and Query Tool are stored along with instructions (*TRACS Query Tool for ArcGIS10.docx*) in a zip file on the T drive:

T:\FS\NFS\R06\Project\NR\TRACS2011\GIS\Tool\TRACS_QueryTool_AddIn_Arc10.zip

More detailed information on using the Query Tool along with examples can be found in Appendix C.

File Geodatabases

The file geodatabases are available for users with good GIS skills. They are comprehensive and include the core TNC data set and MARXAN outputs, and additional data from the FS analysis including:

- Group Relative Abundance (RA) Score – Summed and normalized RA by priority target group (e.g., vertebrates, plants, habitats).
- TNC Biodiversity score – The percent of HUC6 scale subwatershed MARXAN priority of 9 or 10 within each HUC5 AU.
- Priority Watersheds and TRACS Priority Watershed Number.

Data are available at both the HUC5 and HUC6 scales for all lands in Oregon and Washington. Metadata that describe the data and provide a data dictionary for each field are available for each geodatabase. The complete data set is available for use in ArcMAP via Citrix or desktop as two large file geodatabases located at

```
T:\FS\NFS\R06\Project\NR\TRACS2011\GIS\Data:  
    USFS_R6_HUC5_Terr_priorities_April2012.gdb  
    USFS_R6_HUC6_Terr_priorities_April2012.gdb
```

Additional Supporting Data

There are data in addition to MARXAN outputs that were used in identifying regional and ecoregional priorities. These additional data are provided in a series of spreadsheets located on the O drive:

```
O:\NFS\R06\Project\NR\TRACS2011\Spreadsheets
```

Priority Watershed Criteria. A spreadsheet (*PriorityWSsXCriteria.xlsx*) summarizes the reasons each Priority Watershed was identified as an Integrated Priority Watershed or Habitat Conservation and Restoration Watershed. The spreadsheet only includes information for Priority Watersheds.

Habitat Relationships. Spreadsheets summarizing relationships between priority species and priority habitats were also developed (Table 2-2). The spreadsheet for Priority Plants includes additional habitats. Each of these spreadsheets contains a master worksheet with a list of all the Priority Vertebrates, Invertebrates or Plants and their habitat associations, and separate worksheets for each ecoregion.

Threats. In addition to managing habitat for Priority Plants and Vertebrates, reducing threats to species and habitats is also important. Some threats can be readily controlled through FS actions; others may need to be mitigated. The *PriorityVertebratesThreatsXEcoregion.xlsx* and *PriorityHabitatThreatsXEcoregion.xlsx* spreadsheets can be used to identify threats associated with Priority Vertebrates, Socially or Economically Important Vertebrate Species, and Habitats.

The threats with the greatest potential to impact a large number of vertebrate species and habitats are impacts from roads and unnaturally high-intensity fire (Table 2-3). Threats vary by ecoregion. For instance, unnaturally high-intensity fire is not an important threat in the Pacific Northwest Coast Ecoregion but is catastrophic in the East Cascades/Modoc Plateau and Middle Rockies/Blue Mountains Ecoregions.

Roads are the biggest threat to the largest number of species and habitats, and a moderate to high threat in all ecoregions. The FS has moderate to high control over this threat. Road closures generally benefit Priority Species and Habitats. Roads closures can reduce other threats. For example, loss of dead wood, a threat for 44% of Priority Vertebrate Species, can be reduced by closing roads and managing access to firewood collection. Clearly TRACS

Table 2-2. Summary of habitat relationships spreadsheets.

<i>Spreadsheet</i>	Content
<i>PriorityVerteXPriorityHabitat.xlsx</i>	Priority Vertebrates and Socially or Economically Important Vertebrate relationships with Priority Habitats. Johnson and O’Neil (2001) data were used where their wildlife habitat types could be cross-walked to TRACS Priority Habitats. Literature and professional judgment were used to assign habitat relationships to the other TRACS Priority Habitats.
<i>PriorityInvertsXPriorityHabitat.xlsx</i>	Priority Invertebrate Species relationships with Priority Habitats. Fact sheets from ISSSSP were used to assign habitat relationships.
<i>PriorityPlantsXHabitat.xlsx</i>	Priority Plant Species relationships with all TRACS habitats. Regional FS staff used information from the Oregon Biodiversity Information Center, the Washington Natural Heritage Program, the Interagency Special Status/Sensitive Species Program, and expert knowledge to assign all Priority Plants to habitats. The initial TRACS habitat list from which the final TRACS Priority Habitats were selected did not contain all the rare plant habitats in the region, so several were added as needed. Region 6 field botanists corrected the final Priority Plants x Habitat matrix.

information is useful to develop travel management plans and conduct Minimum Roads Analyses: threats data indicate which species are most likely to be affected, and priority target data and RA scores pinpoint critical watersheds for action.

Wood harvest has the potential to be a threat to some priority species, and a benefit to other priority species. Wildlife biologists and botanists should take advantage of opportunities to alter treatment design and reduce some of the negative effects. For example, during thinning projects, use a variable density approach, leaving skips

Table 2-3. Number and percent of 95 Regional Priority Species and 21 Priority Habitats affected by threats.

Threat	# (%) species affected	# (%) habitats affected	FS Control
Roads		21 (100)	Moderately High
Disturbance	49 (52)		Moderately High
Mortality	87 (92)		Moderately High
Barrier	41 (43)		Moderately High
Wood Harvest			
Regeneration harvest		6 (29)	High
Regeneration harvest – habitat loss	47 (49)		High
Regeneration harvest – reduction food/cover	50 (53)		High
Retention harvest		6 (29)	Moderately High
Retention harvest – reduction food/cover	30 (32)		Moderately High
Loss of dead wood	42 (44)	6 (29)	Moderately High
Unnaturally high-intensity fire	53 (56)	14 (67)	Moderately Low
Climate Change – habitat shift and alteration	32 (34)	11 (52)	Low
Climate Change – drought		14 (67)	Low

and creating gaps.

Unnaturally high-intensity fire has the potential to destroy habitat for 56% of Priority Species and 67% of special habitats. Fuels reduction treatments and reintroduction of natural fire regimes can reduce this threat to Priority Species.

Climate change influences fewer species than most other threats listed in Table 2-3, but impacts one-half to two-thirds of Priority Habitats. The FS has little control over this threat; however, climate change is addressed in project analysis. The information in TRACS can be helpful in summarizing which Priority Species may be affected by climate change.

Vulnerability. Life history and habitat vulnerability were part of the vulnerability index used to prioritize vertebrate species (see Chapter 1). The *SpeciesVulnerabilityData.xlsx* spreadsheet includes the scores for individual life history attributes, habitat versatility, and the calculated vulnerability indices.

Data Management

The Forest Service corporate database, the Natural Resource Information System (NRIS), will be used for input of TRACS Priority Species observations and sites. Data management is an important component for monitoring the progress of TRACS implementation. Any data collected on Priority Species and Habitats need to be:

- **Accessible** - easy to find and use by a wide range of users rather than stored in local databases.
- **Compatible** - contained in corporate databases such as NRIS so that they can be compiled across physical and jurisdictional boundaries.
- **Consistent** - collected using accepted protocols.
- **Accurate** - documented to show sources and data reliability.
- **Maintained** - updated on a regular basis to remain useful.

The best quality data are entered by the people who collect it, and as soon as possible after collection. If data are collected and entered consistently across all units it can be reliably used for multi-scale analysis. Data entered into NRIS Wildlife or TES Plants can be shared with ORBIC and the Washington Natural Heritage Program, allowing those outside the Forest Service to use the data in broad-scale assessments that cross jurisdictional boundaries.

It is critical that funding for data entry and management be included in TRACS and all other project costs and that adequate staffing is available for data input. Generally project primary purpose should fund both NEPA *and* data collection and entry.

Examples

To reiterate, TRACS priorities and other data are presented in different formats including spreadsheets, appendices, and GIS geodatabases, all of which can be used to develop informed options for how and where to conserve and restore species and habitats in Priority Watersheds. The following examples use different combinations of data and data formats to reveal good places to concentrate resources on vertebrate (e.g., White-headed Woodpecker) or plant species, enhance habitat for economically important species like elk or huckleberries, or choose watersheds to secure guilds of rare plants that share common habitats (e.g., Eastside Rare Plant Conservation Planning). Other examples identify the best places to conserve key food webs based on component species' overlapping high abundance (e.g., Whitebark Pine/Grizzly Bear/Clark's Nutcracker). Still other examples illustrate ways to strategical-

ly enhance habitats (e.g., Springs and Seeps), or identify key priority resources in Priority Watersheds (e.g., Upper Metolius River [TRACS-76] Integrated Priorities Watershed).

Note that:

- Only watersheds with greater than 25% FS land were included in the tables in the examples.
- RA values for Priority Vertebrates and Socially and Economically Important Vertebrates are based on modeled habitat unless otherwise stated in the example.

Users are encouraged to call on their knowledge and experience as well as the TRACS geodatabases—which have a wealth of information in addition to that presented in the appendices and spreadsheets—for the best possible analyses and results.

Species Examples

Vertebrates

White-headed Woodpecker

White-headed Woodpecker. The White-headed Woodpecker is a year-round resident of dry coniferous forests, and is typically found in mature, open, Ponderosa Pine habitat. This habitat has declined more dramatically than any other forested habitat of the Interior Pacific Northwest (Wisdom et al. 2000). Ten watersheds were identified as Habitat Conservation and Restoration Priority Watersheds for Late-seral Ponderosa Pine (see the Late-seral Ponderosa Pine habitat example under for the list). Dry forests are also the target of most restoration and fuels reduction projects in the Pacific Northwest Region. Conducting additional treatments in watersheds most important to White-headed Woodpeckers will benefit this priority species and its declining habitat.

The White-headed Woodpecker is a priority species in the Middle-Rockies/Blue Mountains Ecoregion. The *PriorTargetsRAPlus1.xlsx* spreadsheet was filtered by ecoregion and species to create Table 2-4, which displays all of the watersheds in the Middle-Rockies/Blue Mountains Ecoregion that are most important for the White-headed Woodpecker. The Query Tool can also be used to find this information; and an example of how to do this is provided in Appendix C.

Projects in these watersheds should be designed to conserve, restore, or protect habitat for the species. Conserving and protecting the large Ponderosa Pine trees that these woodpeckers depend on is key. Many restoration treatments in dry forests are designed to reduce fuel loads and protect the stands from uncharacteristic wildfire. Thinning around large pines may also reduce stress from competition for moisture and nutrients. Large pines should be protected during prescribed burning.

The *PriorityVertebratesThreatsXEcoregion.xlsx* spreadsheet was used to identify threats associated with White-headed Woodpeckers. Threats include: mortality from roads, habitat loss and reduction of food from regeneration harvest, loss of dead wood, and loss of habitat due to both unnaturally high-intensity fire and fire exclusion. Most of the threats can be addressed through habitat conservation and restoration measures. Road closures in suitable White-headed Woodpecker habitat can also reduce direct mortality and reduce loss of dead wood to woodcutters.

Biologists should look for opportunities to work with fire/fuels and vegetation management staffs to identify areas suitable for thinning treatments and reintroducing fire into White-headed Woodpecker habitat. Opportunities to close roads in suitable habitat should be coordinated through Minimum Roads Systems planning.

Table 2-4. Watersheds in the Middle-Rockies/Blue Mountains Ecoregion most important for White-headed Woodpeckers (based on highest RA values).

Watersheds in **bold** are also Priority Watersheds.

Watershed	RA
Big Creek-North Fork John Day River	1.6
Cherry Creek-Snake River	1.6
Granite Creek	1.6
Wenaha River	1.6
Wolf Creek-Snake River	1.6
Bridge Creek-Middle Fork John Day River	1.5
Camp Creek-Middle Fork John Day River	1.5
Desolation Creek	1.5
Headwaters North Fork John Day River	1.5
Long Creek	1.5
Mill Creek-Walla Walla River	1.5
Murderers Creek	1.5
Rock Creek	1.5
South Fork Beaver Creek	1.5
Upper Grande Ronde River	1.5
Upper Middle John Day	1.5
Upper Walla Walla River	1.5

Potential outside partners include: USDA Pacific Northwest and Rocky Mountain Research Stations, tribes, Klamath Bird Observatory, Partners in Flight, and local birding groups.

Upland Sandpiper. For many TRACS Priority Species, information is lacking on their current distribution and the condition and availability of suitable habitat. Surveys may be the most appropriate conservation action for these species, as well as mapping known and potential habitat so that restoration options can be considered. For example, the decline of the Upland Sandpiper, which is a TRACS Priority Species in the Middle-Rockies/Blue Mountains and East Cascades/Modoc Plateau Ecoregions, is of concern because this species has not been recently observed in areas where it historically nested. In eastern Oregon, the Upland Sandpiper is found in montane meadows ranging from 1,000 to 30,000 acres at 3,400 to 5,060 feet in elevation surrounded by lodgepole and sometimes Ponderosa Pine forests (Marshall et al. 2003). Schommer and Akenson (1992) completed a survey protocol and review of current knowledge of sandpiper biology.

TRACS data can identify watersheds that contain habitat for the Upland Sandpiper where surveys could be conducted. The *PriorTargetsRAPPlus1.xlsx* spreadsheet was filtered by ecoregion and species to create Table 2-5, which displays watersheds that contain suitable habitat as indicated by the high RA values for modeled sandpiper distribution. More specific local vegetation information should be used to identify suitable Upland Sandpiper habitat within each watershed.

The *PriorityVertebratesThreatsXEcoregion.xlsx* spreadsheet identifies threats to Upland Sandpipers, which include grazing (habitat degradation and trampling of nests), mortality from roads, fire exclusion, and drought

due to climate change. Assessment of potential grazing impacts in suitable habitat, conducted jointly with range staff, may be appropriate to determine if adjustments in management are needed to restore conditions that support nesting. Fire staff could be consulted to consider prescribed burning opportunities to rejuvenate meadow vegetation. Hydrologists may offer insights on any water regime changes that may have affected habitat suitability, and identify potential restoration actions.

Table 2-5. Watersheds important for the Upland Sandpiper (based on highest RA values for modeled habitat distribution). Watersheds in **bold** are also TRACS Priority Watersheds.

Ecoregion	Watershed	RA
East Cascades/Modoc Plateau	Lower Sycan River	3.90
East Cascades/Modoc Plateau	Sycan River at Sycan Marsh	3.68
East Cascades/Modoc Plateau	Silver Creek	3.65
East Cascades/Modoc Plateau	Upper Sycan River	3.62
East Cascades/Modoc Plateau	Jackson Creek-Williamson River	3.48
East Cascades/Modoc Plateau	Anna River-Summer Lake	3.32
East Cascades/Modoc Plateau	North Fork Sprague River	3.28
East Cascades/Modoc Plateau	Duncan Creek-Silver Lake	3.13
Middle Rockies/Blue Mountains	Lower Camas Creek	2.91
Middle Rockies/Blue Mountains	Upper Silvies River	2.83
Middle Rockies/Blue Mountains	Wolf Creek	2.81
Middle Rockies/Blue Mountains	Bear Creek	2.80
Middle Rockies/Blue Mountains	Lower North Fork Crooked River	2.79
Middle Rockies/Blue Mountains	Upper Camas Creek	2.71
Middle Rockies/Blue Mountains	Headwaters Silvies River	2.71
Middle Rockies/Blue Mountains	Upper North Fork Crooked River	2.69
Middle Rockies/Blue Mountains	Middle Silvies River	2.64
Middle Rockies/Blue Mountains	Upper South Fork John Day River	2.63
East Cascades/Modoc Plateau	Rock Creek-Buck Creek	2.61
Middle Rockies/Blue Mountains	Meadow Creek	2.59
Middle Rockies/Blue Mountains	Potamus Creek-North Fork John Day River	2.51

Since the Upland Sandpiper is also a Region 6 sensitive species, funding could be obtained to support survey or habitat assessment efforts by submitting a proposal to the ISSSP. If partners such as local birding clubs, adjacent private landowners, The Audubon Society, The Nature Conservancy, and the Oregon Department of Fish and Wildlife are engaged, a Challenge Cost Share proposal would be appropriate to leverage partner funds and in-kind resources.

Southern Torrent Salamander. Torrent salamanders are associated with cold headwater streams, seeps, and springs in late-successional forests. Three of these locally endemic salamanders are TRACS Priority Species: Olympic Torrent Salamander, Cascade Torrent Salamander, and Southern Torrent Salamander. Conservation assessments for the Cascade and Olympic Torrent Salamanders are available on the ISSSP web site at <http://www.fs.fed.us/r6/sfpnw/issssp/species-index/fauna-amphibians.shtml>.

TRACS data can be used to identify watersheds where torrent salamander habitat is located, which can inform selection of high-priority areas for surveys, or habitat conservation or restoration. For example, the Southern Torrent Salamander is a Priority Species in three ecoregions: Klamath, Pacific Northwest Coast, and West Cascades. The *PriorTargetsRAPlus1.xlsx* spreadsheet was filtered by ecoregion and species to create Table 2-6, which displays watersheds that contain suitable habitat as indicated by the high RA values. More specific local vegetation information should be used to identify suitable torrent salamander habitat within each watershed.

Table 2-6. Watersheds in three Ecoregions most important for the Southern Torrent Salamander (based on highest RA values). Watersheds in **bold** are also TRACS Priority Watersheds.

Ecoregion	Watershed	RA
West Cascades	Canton Creek	3.90
West Cascades	Middle North Umpqua River	3.70
West Cascades	Steamboat Creek	3.67
West Cascades	Fish Creek	3.36
West Cascades	Upper North Umpqua River	3.21
West Cascades	Clearwater River	2.88
West Cascades	Fall Creek	2.72
West Cascades	Little River	2.68
West Cascades	Lookout Point Reservoir-Middle Fork Willamette River	2.50
Klamath Mountains	Indigo Creek	2.47
Pacific Northwest Coast	Siltcoos River-Frontal Pacific Ocean	2.39
Pacific Northwest Coast	Beaver Creek-Frontal Pacific Ocean	2.25
Klamath Mountains	Briggs Creek	2.21
Pacific Northwest Coast	Little Nestucca River	2.15
Klamath Mountains	Stair Creek-Rogue River	2.14
Klamath Mountains	Lawson Creek-Illinois River	2.10
Pacific Northwest Coast	Drift Creek	2.10
Pacific Northwest Coast	Yachats River	2.08
Klamath Mountains	Winchuck River	2.07
West Cascades	Upper South Umpqua River	2.06
West Cascades	Headwaters Middle Fork Willamette River	2.05
Pacific Northwest Coast	Big Elk Creek	2.04
Klamath Mountains	Silver Creek	2.02

The *PriorityVertebratesThreatsXEcoregion.xlsx* spreadsheet was used to identify threats to torrent salamanders, which include roads (disturbance, mortality, barrier), habitat loss or reduction in food or cover from wood harvest (retention and regeneration), unnaturally high-intensity fire, and climate change (drought and temperature extremes). Silviculture, vegetation management, and engineering staff are key partners for protecting torrent salamander habitat and water quality in headwater streams from road construction and wood harvest in project planning.

Priority TRACS watersheds for the Southern Torrent Salamander may overlap with WCF priorities (see Figure 2-2). Integrated projects in these areas, especially those that enhance connectivity between suitable habitat by improving culverts for passage and retaining riparian buffers, could be developed with fisheries biologists or hydrologists. Actions that provide benefits for torrent salamanders could also be incorporated in planning and

implementation of projects that have been identified in WCF action plans. Important headwater areas can be mapped in association with assessments of water regime changes and threats associated with climate change.

Surveys could be conducted to obtain additional information on the locations and distribution of Southern Torrent Salamanders to aid in conservation planning and other project planning and implementation. The Olympic and Cascade Torrent Salamanders are Region 6 sensitive species, and support for these surveys could be provided by submitting a proposal in the ISSSSP annual funding process. Partners interested in providing funding or in-kind work toward surveys or habitat assessments for the Southern Torrent Salamander could be included in a Challenge Cost Share proposal. The Regional Center of Excellence biologist who serves as the liaison for Partners in Amphibian and Reptile Conservation (PARC) is an excellent resource for additional conservation and restoration ideas and can involve partners for planning and implementing projects.

Socially and Economically Important Vertebrates

TRACS can be used to identify the best areas to conduct restoration and enhancement activities for Socially and Economically Important Vertebrate Species. Most Socially and Economically Important Vertebrates are relatively common and widespread, and thus RA values tend to be low compared to other TRACS priority target groups. Nevertheless, many watersheds contain several species with RAs ≥ 1 and are good choices for restoration and enhancement activities. For example, the Peshastin Creek (TRACS-55) Integrated Priority Watershed emerges from the *PriorityWSsXCriteria.xlsx* spreadsheet as one of the top 10 watersheds for Socially and Economically Important Vertebrates in the Region (Group RA score RA_SEV = 836). It supports many of these key-stone species in fairly high densities.

The *PriorTargetsRAPlus1.xlsx* spreadsheet was used to create Table 2-7, which lists the Socially and Economically Important Vertebrates with RA ≥ 1 in the Peshastin Creek Watershed. The spreadsheet was filtered by watershed and by Priority Taxonomic Group using both SE_HM and VER_HM. This is because Appendix E indicates that Mountain Goat is both a Priority Vertebrate and Socially and Economically Important Vertebrate in the East Cascades/Modoc Plateau Ecoregion.

Table 2-7. Priority Social/Economic Vertebrates in the Peshastin Creek (TRACS-55) Integrated Priorities Watershed of the East Cascades/Modoc Plateau Ecoregion.

Common Name	Scientific Name	Relative Abundance
Bighorn Sheep	<i>Ovis canadensis</i>	2.80
Mountain Goat*	<i>Oreamnos americanus</i>	2.13
Elk	<i>Cervus canadensis</i>	1.07
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

* Note the Mountain Goat is also listed as a Priority Vertebrate in this ecoregion.

Elk. Elk is a priority species in the East Cascades/Modoc Plateau Ecoregion. The *PriorTargetsRAPlus1.xlsx* spreadsheet was filtered by ecoregion and species to create Table 2-8, which shows that based on RA values, both priority and other watersheds are equally important to elk.

The *PriorityVertebratesThreatsXEcoregion.xlsx* spreadsheet was used to identify threats associated with elk, which include domestic grazing (habitat loss or degradation), roads (mortality, disturbance, barrier), poaching, and recreation (motorized and non-motorized). Most of the threats can be addressed through habitat restoration measures. Road closures in prime elk habitat can also reduce direct mortality from hunting and collisions.

Effects of open roads on elk should be considered when conducting Forest Minimum Roads Analyses. Also, working with the state departments of transportation and the Federal Highway Administration can help users consider safe elk passage in highway designs and improvements.

Table 2-8. Watersheds in the East Cascades/Modoc Plateau Ecoregion most important for elk (with highest RA values). Watersheds in bold are also Priority Watersheds.

Watershed	RA	Acres of Habitat
Dry Creek-Fort Rock Valley	1.2	117,764
Fall River-Deschutes River	1.2	113,614
Fourmile Creek	1.2	69,831
Hog Creek-Williamson River	1.2	138,529
Jack Creek-Williamson River	1.2	228,903
Jackson Creek-Williamson River	1.2	164,484
Little Butte Creek	1.2	5,694
Little Walker Mountain	1.2	86,317
Long Prairie	1.2	173,286
Middle Fork Tenaway River-Tenaway River	1.2	126,719
Middle Little Deschutes River	1.2	47,658
Mission Creek	1.2	55,685
Pine Lake-Devils Garden	1.2	103,484
Rock Creek-Buck Creek	1.2	147,722
Sellers Creek	1.2	53,883
Upper Little Deschutes River	1.2	76,209
West Fork Hood River	1.2	62,766
White River	1.2	118,863
White Salmon River	1.2	240,717
Wood River	1.2	118,277

TRACS information on important watersheds for elk should be used in conjunction with the West Side Elk Model (Rowland et al. in prep) and the Blue Mountains Elk Model (in prep.) to help identify areas of the highest value for habitat enhancement or restoration. Areas where elk population numbers are below state game management unit objectives should also be considered. Projects in important areas should be designed to improve elk forage (especially in summer range and key winter range), reduce open road densities where they are excessive, and maintain adequate levels of cover.

To the greatest extent possible, elk habitat enhancement needs should be integrated with projects designed to address multiple resource objectives. For example, many vegetation treatments to reduce fuel loads and protect stands from uncharacteristic wildfire will benefit elk. Other appropriate integrated treatments include forest thinning and creation of early-seral openings, noxious weed control, creation of fuel breaks, meadow enhancement, and aspen restoration. Location of range improvements, such as prescribed burns, juniper thinning, forage seeding, water improvements, and fencing can significantly affect elk distribution, movements, and habitat.

Working collaboratively with partners including the Rocky Mountain Elk Foundation (RMEF), ODFW, WDFW, Oregon Hunters Association, County Weed Boards, and others can help leverage efforts and resources for habitat enhancement and restoration. For additional partners and integration suggestions, consult with Region 6 Elk Centers of Excellence and Forest Service RMEF Project Advisory Representatives for Oregon and Washington (see Region 6, Natural Resource, Wildlife Intranet Site for current list of Wildlife Centers of Excellence).

Mule Deer. Mule Deer is a Priority Species in all the ecoregions east of the Cascade crest. The *PriorTargetsRAPlus1.xlsx* spreadsheet was filtered by ecoregion and species to create Table 2-9 which displays the most important watersheds for Mule Deer.

Table 2-9. Watersheds in ecoregions east of the Cascade crest most important for Mule Deer (with highest RA values). Watersheds in **bold** are also Priority Watersheds.

Ecoregion	Watershed	RA	Acres of Habitat
Columbia Plateau	Wall Creek	1.05	14,774
Columbia Plateau	Squaw Creek	1.05	15,002
Columbia Plateau	Murderers Creek	1.05	28,213
Columbia Plateau	Upper Beaver Creek	1.05	39,330
Columbia Plateau	Rock Creek-Buck Creek	1.05	40,211
Columbia Plateau	Deep Creek	1.05	1,787
Columbia Plateau	Willow Creek	1.05	103,575
Columbia Plateau	Upper North Fork Crooked River	1.04	865
Columbia Plateau	Juniper Butte-Crooked River	1.03	62,244
East Cascades/Modoc Plateau	Mad River	1.03	59,129
East Cascades/Modoc Plateau	Middle Fork Tenaway River-Tenaway River	1.03	133,619
East Cascades/Modoc Plateau	Honey Creek	1.03	23,744
East Cascades/Modoc Plateau	Fifteenmile Creek	1.03	45,942
East Cascades/Modoc Plateau	Upper Sycan River	1.03	66,652
East Cascades/Modoc Plateau	Mission Creek	1.03	59,998
East Cascades/Modoc Plateau	Peshastin Creek	1.03	87,712
East Cascades/Modoc Plateau	Sellers Creek	1.03	55,459
East Cascades/Modoc Plateau	Rock Creek-Buck Creek	1.03	152,178
East Cascades/Modoc Plateau	Lower Sycan River	1.03	148,192
East Cascades/Modoc Plateau	Rattlesnake Creek-Naches River	1.03	192,561
East Cascades/Modoc Plateau	Little Walker Mountain	1.03	87,815
East Cascades/Modoc Plateau	Little Butte Creek	1.03	5,715
East Cascades/Modoc Plateau	Upper Chewaucan River	1.03	122,301
East Cascades/Modoc Plateau	Eightmile Creek	1.03	48,330
East Cascades/Modoc Plateau	Taneum Creek-Yakima River	1.03	202,399
East Cascades/Modoc Plateau	Middle Chewaucan River	1.03	50,863
East Cascades/Modoc Plateau	Sycan River at Sycan Marsh	1.03	145,665
East Cascades/Modoc Plateau	Entiat River	1.03	211,371
East Cascades/Modoc Plateau	Jackson Creek-Williamson River	1.03	172,785
East Cascades/Modoc Plateau	North Fork Sprague River	1.03	133,968
East Cascades/Modoc Plateau	Dry Creek-Fort Rock Valley	1.03	121,695
East Cascades/Modoc Plateau	Chiwawa River	1.03	121,909
East Cascades/Modoc Plateau	Tumalo Creek	1.03	38,390
East Cascades/Modoc Plateau	Jack Creek-Williamson River	1.03	238,070
East Cascades/Modoc Plateau	Walker Creek	1.03	10,161
East Cascades/Modoc Plateau	South Fork Sprague River	1.03	122,869
East Cascades/Modoc Plateau	Nason Creek	1.03	70,321
East Cascades/Modoc Plateau	Kotzman Basin	1.03	81,240

TRACS information on important watersheds for Mule Deer should be used in conjunction with the Oregon Mule Deer Initiative (MDI) to focus enhancement and restoration efforts. The MDI identified five priority game

management units (Heppner, Maury, Murderers Creek, Steens Mountain and Warner) where the goal is to bring Mule Deer numbers up to the population management objective (the number of animals considered compatible with habitat).

Mule Deer habitat enhancement needs mesh with projects designed to address multiple resource objectives. For example, treatments designed to contain, reduce, and eliminate the spread of invasive weeds like cheat-grass and medusahead rye will have beneficial effects on Mule Deer. In many areas these invasive weeds have replaced bitterbrush, sage-brush, and other important Mule Deer forage species. Forage needs can also be enhanced by removal of junipers that have encroached on shrub-steppe habitat, crowding out nutritious plants. Restoration of aspen also benefits Mule Deer as well as many other wildlife species.

Fewer fires have contributed to a decrease in early succession forests and rangelands, which provide important browse, forbs, and grasses for deer. Enhancement of Mule Deer forage can be integrated with fuels management efforts to reduce fuel loads and protect stands from uncharacteristic wildfire.

The *PriorityVertebratesThreatsXCoregion.xlsx* spreadsheet was used to identify threats associated with Mule Deer, which include domestic grazing (habitat loss or degradation), roads (mortality, disturbance, barrier), poaching, recreation (motorized and non-motorized), fire exclusion, and habitat loss due to invasive species.

Mule Deer are especially sensitive to disturbance and direct mortality from open roads. Impacts from different levels of access and recreational use should be considered alongside the need Mule Deer have for hiding cover. Researchers have established that unlike elk, Mule Deer do not flee long distances and therefore have a greater need for hiding cover. Permanent or seasonal road closures may be needed to protect key winter range and fawning areas, which can be identified during completion of a Forest Minimum Roads Analysis.

New recreation developments may impact Mule Deer, especially those that might influence movement patterns across the landscape such as trails that would be used for hiking, hunting, and horseback riding. Off-highway vehicle (OHV) trails and cross-country travel have increased exponentially in the past few decades, and can displace Mule Deer into unfamiliar or less productive habitat. High open road densities also provide increased opportunity for poaching, which is believed to cause significant mortality to some herds. It will be helpful to work with forest law enforcement officers and state agency game management staff to develop strategies to combat poaching where prevalent.

By working collaboratively with partners including ODFW, WDFW, ODOT, WDOT, BLM, The Mule Deer Foundation, RMEF, tribes, county government and private landowners, users can leverage efforts and resources for projects that would benefit Mule Deer. ODOT and WDOT are obvious partners to collaborate on projects that minimize deer/vehicle collisions where roads and highways bisect well-established migration corridors.

Bighorn Sheep. The Bighorn Sheep is considered both a Priority Vertebrate and a Socially and Economically Important Vertebrate in the Middle Rockies/Blue Mountains and Okanagan Ecoregions. The *PriorTargetsRAPlus1.xlsx* spreadsheet was filtered by ecoregion, species, and priority taxa group (SE_HM and VER_HM) to create Table 2-10, which identifies watersheds in ecoregions east of the Cascade crest most important to Bighorn Sheep.

The *PriorityVertebratesThreatsXCoregion.xlsx* spreadsheet was used to identify threats associated with Bighorn Sheep, which include livestock grazing (habitat loss or degradation), roads (disturbance, mortality, barrier), hunting, recreation, invasive species (direct mortality from disease), and climate change (habitat shift and alteration).

Table 2-10. Watersheds in ecoregions east of the Cascade crest most important for Bighorn Sheep (with highest RA values). Watersheds in **bold** are also Priority Watersheds.

Ecoregion	Watershed	RA
East Cascades/Modoc Plateau	Icicle Creek	3.55
East Cascades/Modoc Plateau	Upper Lake Chelan	3.36
Middle Rockies/Blue Mountains	Getta Creek-Snake River	3.08
Okanagan	Ashnola River	3.06
East Cascades/Modoc Plateau	Entiat River	2.91
Middle Rockies/Blue Mountains	Upper Wallowa River	2.91
Okanagan	Curlew Creek	2.82
East Cascades/Modoc Plateau	Peshastin Creek	2.80
Middle Rockies/Blue Mountains	George Creek-Asotin Creek	2.78
Middle Rockies/Blue Mountains	Lower Joseph Creek	2.72
Middle Rockies/Blue Mountains	Lower Imnaha River	2.70
Middle Rockies/Blue Mountains	Lostine River	2.61
Middle Rockies/Blue Mountains	Cherry Creek-Snake River	2.58
Middle Rockies/Blue Mountains	Headwaters Silvies River	2.48
Okanagan	Upper Chewuch River	2.48
Okanagan	Vulcan Mountain-Kettle River	2.45
East Cascades/Modoc Plateau	Mad River	2.42
Middle Rockies/Blue Mountains	Wolf Creek-Snake River	2.37
East Cascades/Modoc Plateau	Lower Lake Chelan	2.35
Middle Rockies/Blue Mountains	Granite Creek-Snake River	2.30
East Cascades/Modoc Plateau	Little Naches River	2.30
East Cascades/Modoc Plateau	Crooked Creek	2.21
East Cascades/Modoc Plateau	Honey Creek	2.13
Okanagan	Salmon Creek	2.03
Columbia Plateau	Murderers Creek	2.00

The separation of domestic sheep from Bighorn Sheep is the crucial management priority due to the risk of disease transmission. Working with permittees and interested organizations is important for modifying the boundaries of grazing allotments, or changing livestock from sheep to cattle to maintain spatial and temporal separation of Bighorn Sheep and livestock.

Opportunities also exist to enhance habitat for this species. Collaboration with partners including ODFW, WDFW, the Foundation for North American Wild Sheep, the Oregon Hunters Association, tribes, and cattle and sheep allotment permittees can help integrate Bighorn Sheep habitat restoration and enhancement needs with multiple use projects. For example, some integrated restoration treatments designed to reduce fuel loads and protect stands from uncharacteristic wildfire will benefit Bighorn Sheep. Prescribed fire can be used to remove dead, unpalatable forage, and renew plant growth and vigor, improve forage quantity and quality, and retard encroachment of junipers or other coniferous trees. Minimum Roads Analysis can be used to pinpoint areas where open roads may be affecting sheep habitat.

Because Bighorn Sheep rely on vision to avoid predators, dense stands of junipers or other conifers can reduce visibility and increase predator effectiveness. Furthermore, junipers may compete for water and nutrients needed by forage plants on desert ranges and therefore can decrease forage quantity and quality as well as live water availability from springs and seeps. Removal of juniper and invasive species can improve native plant communities and enhance Bighorn Sheep habitat quality. Spring and water developments can improve water quality and quantity in canyon habitats where adequate water is lacking.

The National Bighorn Sheep Biologist is available to consult on Bighorn Sheep management or habitat restoration opportunities.

Plants

While vertebrates tend to have broad ranges and varied habitat preferences, most sensitive plants are highly habitat specific and are often confined to one ecoregion or even one forest. Spreadsheet tools like *PriorTargetsRAPlus1.xlsx* (plant abundance by watershed) will identify the one or few watersheds that provide the best opportunities for conservation of particular plants. Many endemic plants have only a handful of occurrences in one ecoregion, so these are the places to go to protect them.

Botanists can use TRACS data to identify opportunities to improve grassland, rangeland, and understory conditions. TRACS information can help users find the right places to engage with the range program to secure healthy rare plant habitats. Rather than ensure that large habitat-disturbing projects don't harm rare plants, botanists can purposefully use TRACS information to help design activities that enhance habitat and actively benefit rare plants and other TRACS priority elements. This will happen as goals and emphasis areas are integrated with other programs like fire, fuels, forest products, and engineering to achieve larger landscape benefits from projects funded by many programs. When botanists can bring real incentives and information to the planning table they can help guide how large-scale work is done and where.

Eastside Rare Plant Conservation Planning. Many eastside plant species tolerate or thrive under a fire regime of sporadic low-intensity ground fires. Botanists and planners can use *PriorTargetsRAPlus1.xlsx* to identify particular watersheds with a high concentration of these species, or places where habitat restoration and enhancement will benefit many sensitive plant species. Collaboration with vegetation management and fuels specialists can help direct projects to appropriate locations. Icicle Creek—an Integrated Priorities Watershed—exemplifies this approach since it has the largest known occurrences of several of the eight sensitive plants it supports (Table 2-11).

Table 2-11. Priority plants in the East Cascades/Modoc Plateau Icicle Creek Watershed on the Okanogan-Wenatchee NF.

Watershed	Common Name	Scientific Name	RA
Icicle Creek	Ross' Avens	<i>Geum rossii</i> var. <i>depressum</i>	5.15
Icicle Creek	Salish's Daisy	<i>Erigeron salishii</i>	4.45
Icicle Creek	Showy Stickseed	<i>Hackelia venusta</i>	4.45
Icicle Creek	Seely's Silene	<i>Silene seelyi</i>	4.39
Icicle Creek	Oregon Checker-mallow	<i>Sidalcea oregana</i> var. <i>calva</i>	4.16
Icicle Creek	Wenatchee Larkspur	<i>Delphinium viridescens</i>	3.74
Icicle Creek	Long-sepal Globemallow	<i>Iliamna longisepala</i>	3.13
Icicle Creek	Thompson's Pincushion	<i>Chaenactis thompsonii</i>	2.25

Alternatively, botanists and planners can use *PriorTargetsRAPlus1.xlsx* to ask how many watersheds should be

considered in developing conservation plans for a suite of species, and then use *PriorityPlantsXHabitatXEcoregion.xlsx* to ask which habitats support them in that ecoregion (Table 2-12). Habitat improvement projects can then be strategically targeted to the best places in the most diverse watersheds by looking at species occurrence data in the TRACS geodatabase or NRIS TESP.

Table 2-12. Habitat and RA for certain Priority Plants in the East Cascades/Modoc Plateau Ecoregion.

Watershed (RA)	Common Name	Scientific Name	Habitat in East Cascades/Modoc Plateau
Middle Fork Tenaway River-Tenaway River (5.16), Cle Elem River (3.92), Peshastin Creek (2.41), Mission Creek (2.30), Icicle Creek (2.25), Wenatchee River (1.86)	Thompson's Pincushion	<i>Chaenactis thompsonii</i>	Deciduous Riparian¹ , Grassland/ Native Bunch Grass, Late-seral Mixed Conifer - Eastside, Late-seral Ponderosa Pine , Rock Outcrop, Serpentine Meadows/Uplands
Peshastin Creek (5.40), Mission Creek (3.74), Icicle Creek (3.74), Taneum Creek-Yakima River (2.53), Wenatchee River (2.52)	Wenatchee Larkspur	<i>Delphinium viridescens</i>	Aspen, Deciduous Riparian, Late-seral Ponderosa Pine, Springs and Seeps, Wet Meadows
Nason Creek (5.12), Icicle Creek (4.45), Upper Lake Chelan (3.41)	Salish's Daisy	<i>Erigeron salishii</i>	Alpine Meadows, Talus
Peshastin Creek (4.41), Icicle Creek (4.39), Wenatchee River (4.01), Middle Fork Tenaway River-Tenaway River (2.77), White River-Little Wenatchee River (2.35), Upper Lake Chelan (2.07)	Seely's Silene	<i>Silene seelyi</i>	Cliffs, Rock Outcrops, Talus
Little White Salmon River (4.75), White Salmon River (4.38), Tieton River-Naches River (3.14)	Pale Blue-eyed-grass	<i>Sisyrinchium sarmentosum</i>	Dry Meadows, Late-seral Mixed Conifer - Eastside, Wet Meadows

¹Ecoregional Priority Habitats are bolded

Whitebark Pine/Grizzly Bear/Clark's Nutcracker. Whitebark Pine seeds are an important food source for a number of Priority Wildlife Species in the Pacific Northwest, including Brown (Grizzly) Bear and Clark's Nutcracker. Moreover, Whitebark Pine has an obligate mutualistic relationship with Clark's Nutcracker as it is nearly completely dependent on the corvid for dispersal and regeneration. This trio provides a prime example of how addressing multiple TRACS priorities can restore Priority Habitats in Priority Watersheds while recovering federal candidate plants and wildlife, as well as closely associated sensitive species. Simultaneously filtering for Whitebark Pine, Grizzly Bears, and Clark's Nutcracker in the *PriorTargetsRAPlus1.xlsx* spreadsheet reveals watersheds within the Okanagan Ecoregion in which all targets occur. A number of watersheds, including several Priority Watersheds, are important to each species as indicated by relatively high RA values (Table 2-13).

Several watersheds important for Whitebark Pine overlap with watersheds that are important for both Grizzly Bear and Clark's Nutcracker, including: Ashnola River, Upper Chewuch River, and Lower Chewuch River. These are key watersheds for conservation and restoration work where multiple and synergistic benefits for both plant and animal species could be achieved. Actions that contribute to the conservation or restoration of Whitebark Pine while also benefitting Clark's Nutcracker include seeding and planting, thinning to remove competing vegetation, and fuels and fire management (Shoal et al. 2008). Local vegetation and forest health infor-

Table 2-13. Watersheds in the Okanagan Ecoregion most important for Whitebark Pine, Grizzly Bear, and Clark's Nutcracker. Watersheds in **bold** are also Priority Watersheds. Empty cells indicate RA values <1.0. (Note: although Clark's Nutcracker is not a Priority Species in the Okanagan Ecoregion, it does have relatively high RA values in a number of watersheds within the ecoregion).

Watershed	Whitebark Pine RA	Grizzly Bear RA	Clark's Nutcracker RA
Stehekin River	3.59		2.32
Ruby Creek	3.50		2.31
Ashnola River	3.47	3.15	2.38
Three Fools Creek-Lightning Creek	3.37		2.32
Pasayten River-Similkameen River	2.91		2.34
Upper Methow River	2.81		2.06
Upper Chewuch River	2.77	3.18	2.21
Lost River	2.69		2.19
Twisp River	2.31		1.88
Lower Chewuch River	1.29	3.11	1.70
Sinlahekin Creek	1.12	3.02	1.64
Snehumpton Creek-Similkameen River	1.01	2.19	1.24
Middle Methow River			1.39
Lower Methow River			1.24
Salmon Creek			1.22

mation should be used to identify specific locations where Whitebark Pine needs restoration or conservation action as a result of blister rust, mountain pine beetles, competing vegetation and other disturbances or threats. Regionally, potential internal partners include Pacific Northwest, Pacific Southwest, and Rocky Mountain Research Station scientists, forest health protection specialists, and FS geneticists working on Whitebark Pine conservation and restoration. External partners include the U.S. Fish and Wildlife Service, National Park Service, BLM, tribes (Warm Springs, Colville, Yakama), Washington State Department of Natural Resources, ski area owners and operators, and non-profit organizations such as the Crater Lake Institute and the Whitebark Pine Ecosystem Foundation.

Queries of the TRACS geodatabase indicate that both the Ashnola and Upper Chewuch River watersheds contain large portions of congressionally designated wilderness (preservation management class, Table 2-14). In these as well as other wilderness areas where Whitebark Pine occurs in the Pacific Northwest, the stated objective of "protect the best" has largely been accomplished by congressional designation. Aside from the inventory and monitoring of Priority Species, resource specialists would not generally propose further work in these types of watersheds. However, the fact that nearly 75% of potential Whitebark Pine habitat on National Forest System land in the Pacific Northwest occurs in wilderness areas (Aubry et al. 2008), combined with its recent listing as a federal candidate species (and thus addition to the Regional Forester's Sensitive Species List), suggests that appropriate active restoration opportunities in wilderness should be considered as part of species' recovery efforts. Possibilities to expand core conservation areas in wilderness with treatments and habitat en-

Table 2-14. Watershed acreage (% of total) by management class for watersheds in the Okanagan Ecoregion most important for Whitebark Pine, Grizzly Bear, and Clark's Nutcracker and their acreage distribution (%) by management class. Watersheds in **bold are Priority Watersheds.**

Management Class	% of Watershed		
	Ashnola River	Upper Chewuch River	Lower Chewuch River
Active Management		0.30	17.57
Conservation Emphasis		15.98	31.74
Managed Conservation		2.56	17.58
Managed Multiple Objectives		1.02	22.19
Preservation	99.99	80.12	0.23
Recreation Emphasis		0.02	0.03
Non-Forest Service	0.01		10.66
Total	100.0	100.0	100.0

enhancements in adjacent non-wilderness areas with suitable habitat for Whitebark Pine should also be explored. Creating larger and more sustainable habitat blocks will help secure not just Whitebark Pine but the many priority animals that use this habitat, including Clark's Nutcracker and Grizzly Bear as well as Boreal Owl, Flammulated Owl, Great Gray Owl, Bighorn Sheep, American Marten, Pika, and several woodpeckers.

Socially/Economically/Culturally Important Plants

Socially, economically, and culturally important (SEC) plants (Appendix G) are important components of overall biotic diversity, and are represented by interest groups ranging from tribes, to commercial harvesters of special forest products like salal or noble fir boughs, to casual forest visitors who pick mushrooms or huckleberries on forests near urban areas. In some cases, these plants are over-harvested. For example, Pacific Yew (*Taxus brevifolia*) is harvested to produce taxol, and many others like beargrass (*Xerophyllum tenax*) require management and restoration to thrive.

Socially, economically, and culturally important plants are not as well documented as most rare species, and distribution and habitat association information is often lacking. Detailed range maps are unavailable. Consequently these plants were not included in the MARXAN process or the TRACS species, habitat, and watershed priority analyses, and are not included in the TRACS GIS tools. Moreover, many of the species on the list are wide-ranging but may be of significance in some ecoregions and not others, and so may not require management attention over all portions of their ranges. Given the lack of regionally mapped priority habitat areas for SEC plants, restoration priorities and management needs for these species should be developed at the forest or district level as appropriate, based on the broad outline presented in Appendix G. Local knowledge of plant distribution, abundance, condition on the local landscape and traditional uses will be essential.

Many restoration treatments, including burning, thinning, fencing, and invasive plant management, can be used to maintain and enhance SEC plant habitat and vigor. Treatments vary depending on the species, habitat, and other local priority targets. Appendix G offers a starting point by ecoregion for species that can be co-managed; consult the literature and local experts for more detailed inspiration. Botanists should work with wildlife and fisheries biologists, invasive plant managers, hydrologists, geologists and soils scientists to create opportunities to design broadly beneficial projects that leverage funds. Potential external partners include tribes, native plant societies, forest

collaborative groups, and wildlife advocates like the Rocky Mountain Elk Foundation and Defenders of Wildlife.

Projects to improve knowledge of the distribution, habitat associations, or condition of SEC plants are consistent with achievement of overall TRACS objectives. An example is the Umatilla National Forest's First Foods project to model habitat distribution for plant species important to traditions of the Confederated Tribes of the Umatilla Indian Reservation. The Confederated Tribes have requested inclusion of a First Foods effects analysis of culturally important plants in NEPA documents for forest products; this is difficult without accurate distributional information that can guide ground-based surveys. Distribution information will ultimately help compliance with agreements to manage traditional resources on tribal lands ceded to the federal government.

Huckleberry Enhancement Projects

Huckleberry Enhancement Projects. The Gifford Pinchot National Forest is planning an integrated restoration project to maintain and enhance shrub fields for two species of huckleberry (*Vaccinium membranaceum* and *V. ovalifolium*). The project achieves multiple TRACS and resource objectives since the huckleberry species are important traditional foods for the Cowlitz Indian Tribe, and thinning and burning also provide important forage habitat for elk and Black-tailed Deer. Both cervids are Priority Socially and Economically Important Species in the West Cascades Ecoregion.

The Mt. Baker-Snoqualmie pilot project is a collaborative effort with the Tulalip Tribe to enhance Big-leaf Huckleberry (*Vaccinium membranaceum*) through habitat restoration. The project responds to needs identified by the Tulalip tribal natural resource staff to provide access for elders and youth to productive berry fields to harvest an important traditional diet item. The project supports the Kids in the Woods initiative since Tulalip youth are part of the research, planning, and site preparation; and younger children can accompany parents and elders in berry gathering. The project also achieves wildlife habitat restoration through clearing and burning, and will provide benefits to bears and other species that eat berries. The suggested treatment areas are within the recovery zone for the Grizzly Bear (a listed species and TRACS priority vertebrate).

The Public Lands Act of 2009 requires the Mt. Hood NF to develop a First Foods strategic plan with the Confederated Tribes of the Warm Springs, wherein huckleberry management is a central focus. Consequently the Mt. Hood NF is actively engaged in restoration of current and historic huckleberry fields that are declining due to habitat loss and encroachment by other species. The Forest has done extensive ecological mapping of historical and current huckleberry sites and has approached huckleberry restoration using a variety of methods that include on-going monitoring to determine treatment effectiveness. Because this is a broadly recognized important social and cultural plant for forest recreationists and tribes, as well as an ecologically important plant for plant community diversity and wildlife and a TRACS priority in the East Cascades Ecoregion, this ongoing huckleberry enhancement program could be supported by multiple sources of funding. The project can be further enhanced by using TRACS GIS tools to identify Priority Species that will benefit from specialized huckleberry restoration work, and incorporating other East Cascades SEC species from Appendix G during project planning.

Invertebrates

The list of Regional Priority Invertebrates (Appendix H) was derived from the 2008 Regional Forester's Special Status Species List. Generally there is limited information on the distribution and habitat associations of the invertebrates on this list, and the status of invertebrates changes frequently as new surveys expand knowledge. TRACS used the most recent information available at the time the priorities were developed. Information on the Priority Invertebrates, such as fact sheets, can be found on the Interagency Special Status/Sensitive Species (ISSSP) web site at <http://www.fs.fed.us/r6/sfpnw/issssp>. The *PriorityInvertsXPriorityHabitat.xlsx* spreadsheet displays associations

of Priority Invertebrates with TRACS Priority Habitats.

The ISSSSP annual project proposal process funds projects on priority invertebrates that collect information to fill gaps in our knowledge of the species’ distribution or its habitat. Potential external partners for invertebrate conservation are the Xerces Society and the Oregon or Woodland Park zoos.

Evening Fieldslug

Evening Fieldslug. The Evening Fieldslug (*Deroceras hesperium*) is associated with perennially wet meadows in forested habitats. This species appears to have high moisture requirements and is almost always found in or near herbaceous vegetation at the interface between soil and water or under litter and other cover (rocks, down wood) in situations where the soil and vegetation remain constantly saturated. Suitable habitat includes perennial wetlands, springs, seeps and riparian areas.

The *PriorityInvertsXPriorityHabitat.xlsx* spreadsheet was used to determine that the Evening Fieldslug is associated with Deciduous Riparian (Willows and Other Shrubs) Habitat. Both the Evening Fieldslug and Deciduous Riparian Habitat are priorities in the East Cascades/Modoc Plateau (Appendices H and I). The *PriorTargetsRAPlus1.xlsx* spreadsheet was used to determine that both the Evening Fieldslug and Deciduous Riparian Habitat occur in the Fourmile Creek Watershed (Tables 2-15 and 2-16). This watershed is both an Integrated Priorities and a Habitat Conservation and Restoration Watershed.

Table 2-15. Watersheds in the East Cascades/Modoc Plateau Ecoregion most important for the Evening Fieldslug (based on highest RA values). Watersheds in **bold** are also TRACS Priority Watersheds.

Watershed	RA
Upper Sycan River	3.94
Middle Chewaucan River	3.81
Hog Creek-Williamson River	3.45
Jenny Creek	3.39
Anna River-Summer Lake	3.19
Sellers Creek	3.03
Upper Chewaucan River	2.93
Fishhole Creek	2.86
Fourmile Creek	2.73
Jackson Creek-Williamson River	2.58
Little Walker Mountain	2.57

Table 2-16. Watersheds in the East Cascades/Modoc Plateau Ecoregion most important for Deciduous Riparian (willows and other shrubs) habitat (based on highest RA values). Watersheds in **bold** are also TRACS Priority Watersheds.

Watershed	RA
Fifteenmile Creek	2.38
East Fork Hood River	2.37
White River	2.34
Eightmile Creek	2.22
Tygh Creek	2.20
Kachess River-Yakima River	2.19
West Fork Hood River	2.03
Fourmile Creek	1.88
Twentymile Creek	1.82
Chiwawa River	1.81

The list of wildlife species associated with Deciduous Riparian were identified from *PriorityVertsXPriorityHabitat.xlsx*, and is given below. Appendix L was used to determine which of those species also had RA values ≥ 1 in the Fourmile Creek watershed. Alternatively the *PriorTargetsRAPlus1.xlsx* spreadsheet could have been used to get the same list of species. There are no Ecoregional Priority Plants in Fourmile Creek watershed that occur in Deciduous Riparian Habitat.

American Marten
Cascades Frog
Elk
Northern Goshawk
Wild Turkey

Biologists should look for opportunities to conserve and restore habitat for the slug as well as these other priority species that occur in Deciduous Riparian Habitat. For example, activities that lower the water table, alter the available moisture, compact soils, reduce litter or vegetative cover, or impact potential food sources (for example spring development or diversions, livestock grazing, heavy equipment use, ORVs, and camping on occupied habitats) could be deleterious to Evening Fieldslug survival. Removal of logs and woody debris from occupied habitats for firewood gathering for campfires or by fire events are also likely to degrade slug habitat. These activities could also affect other Priority Species dependent on this habitat, such as marten, Cascades Frog, elk, and turkey. Internally, biologists could work with vegetation management and recreation staff, soil scientists, and hydrologists to conserve and restore these habitat components characteristic of Deciduous Riparian Habitat.

Intense fire that burns through the litter and duff layers is devastating to most gastropods, and even light burns during seasons when these animals are active are expected to have more serious impacts than burns during dormant periods. Effects of fire retardant and other chemicals on small snails are not known and may be deleterious, especially when dissolved in water. Again, biologists should look for opportunities to work with internal partners including fire/fuels staff to conserve and restore habitat for the Evening Fieldslug.

Snowmobiling or skiing could impact fieldslugs if snow over their occupied habitats is compacted, causing it to lose its insulating properties and allowing the litter or ground to freeze. Disturbance from these recreational activities may also affect marten, goshawk, elk, grouse and turkey during the time of the year when they are most vulnerable.

Few outside partners champion invertebrates like snails and slugs, but by partnering with other organizations that focus on more charismatic species, habitat for these invertebrates can be protected as well. Examples include Partners in Amphibian and Reptile Conservation, Rocky Mountain Elk, Ruffed Grouse Society, and the Wild Turkey Federation. Alternatively, organizations that focus on protection of broad ecological systems and landscapes, like The Nature Conservancy and the Wetlands Conservancy, would also benefit this species.

Habitat Examples

Aspen. Aspen is a Priority Habitat in the Okanagan Ecoregion. The most important watersheds for aspen in this ecoregion were identified using the *PriorTargetsRAPlus1.xlsx* spreadsheet (Table 2-17). Aspen stands are hotbeds of biodiversity and are particularly important to ungulates and cavity nesters. There is a great deal of interest in aspen restoration. Aspen conservation and restoration can be used as a starting point for project planning in many ecoregions.

Salmon Creek is a TRACS priority Habitat Conservation and Restoration Watershed because it is one of the 12 most important watersheds for aspen in the Region. The Swamp Creek-Columbia River and Lower Chewuch River Watersheds are also important for aspen, based on relatively high RA values (Table 2-17).

Table 2-17. Watersheds in the Okanagan Ecoregion most important for aspen (based on highest RA values). Salmon Creek is a Priority Watershed.

Watershed	RA
Salmon Creek	3.60
Swamp Creek-Columbia River	1.38
Lower Chewuch River	1.17

There is one Priority Plant species in the Okanagan Ecoregion associated with Aspen habitat, *Botrychium crenulatum* (Crenulate Moonwort). Several Priority Vertebrate Species in the Okanagan Ecoregion are associated with Aspen habitat. They include:

- Boreal Chickadee
- Boreal Owl
- Moose
- Mule Deer
- Northern Goshawk

Loss of aspen can be attributed primarily to the successional process that occurs with the reduction or elimination of fire, and excessive use by ungulates. Where aspen was historically present, a distinctive surface soil with high organic content has developed. Opportunities for aspen restoration can be identified by looking for this signature in the soil profile, even if other tree species are present on the site (e.g., Ponderosa Pine). Results from genetic studies and clonal inventories can also be used in conjunction with TRACS and other information to help guide conservation and restoration activities and to identify priority stands for treatment and protection (Swanson et al. 2010). For example, clonal maps of aspen stands can assist in making fine-scale management decisions such as fence placement to maximize protection of extant clones in a stand, or to guide decisions on location of root collections to ensure sexual and genetic diversity in planting stock derived from the root propagules. From a larger genetic perspective, priority stands for restoration and protection include those that harbor large amounts of genetic diversity, are highly differentiated, or that contain rare or unusual genes. Many treatments, such as planting, burning, cutting, fencing (buck and pole), spraying, ripping, and chaining can be used to restore aspen. However, some of these treatments need to be used with caution. Clones treated by burning and then repeatedly browsed usually die quickly. Planting seedlings and treatments to induce suckering should not be initiated until relief from excessive browsing is achieved

Biologists should look for opportunities to work with soil scientists, geneticists, and silviculturists to decide where to focus restoration efforts, with fire/fuels staff to reintroduce fire into this habitat, and with range staff to exclude cattle. Without management actions such as fencing, removal of conifer encroachment, and planting, many aspen stands will continue to decline and will not replace themselves except through rare, episodic disturbance events such as wildfire. Isolated monoclonal stands with high herbivory pressure are at greatest risk of extirpation. When artificial regeneration is used to enhance genetic diversity or stand size, or to create new aspen stands, plantings should include both male and female individuals to help promote sexual reproduction in this dioecious species.

Potential external partners include: USDA Rocky Mountain Research Station, Rocky Mountain Elk Foundation, Wallowa Resources, California Rangeland Watershed Laboratory, Deschutes Land Trust, and the National Forest Foundation.

Springs and Seeps. Springs and Seeps are a Priority Habitat in all ecoregions and should be protected and re-stored wherever they occur. The *PriorTargetsRAPlus1.xlsx* spreadsheet was filtered by ecoregion and habitat to create Tables 2-18 and 2-19, which show the most important watersheds in the Pacific Northwest Coast and East Cascades/Modoc Plateau Ecoregions.

Table 2-18. Watersheds in the Pacific Northwest Coast Ecoregion most important for Springs and Seeps (based on highest RA values). Drift Creek is a Priority Watershed.

Ecoregion	Watershed	RA
Pacific Northwest Coast	Drift Creek	3.26
Pacific Northwest Coast	Sand Lake-Frontal Pacific Ocean	3.22
Pacific Northwest Coast	Humptulips River-Frontal Grays Harbor	3.01
Pacific Northwest Coast	South Fork Coquille River	2.72
Pacific Northwest Coast	Sixes River	2.63
Pacific Northwest Coast	Jimmycomelately Creek-Sequim Bay	2.56
Pacific Northwest Coast	Lobster Creek	2.34
Pacific Northwest Coast	Dosewallips River	2.24

Table 2-19. Watersheds in the East Cascades/Modoc Plateau Ecoregion most important for Springs and Seeps (based on highest RA values). Watersheds in **bold** are Priority Watersheds.

Ecoregion	Watershed	RA
East Cascades/Modoc Plateau	Crescent Creek	4.87
East Cascades/Modoc Plateau	Sycan River at Sycan Marsh	3.41
East Cascades/Modoc Plateau	Crooked Creek	2.60
East Cascades/Modoc Plateau	Deep Creek	2.53
East Cascades/Modoc Plateau	Honey Creek	2.37
East Cascades/Modoc Plateau	Drews Creek	2.32
East Cascades/Modoc Plateau	White River	2.27
East Cascades/Modoc Plateau	Gerber Reservoir-Miller Creek	2.24
East Cascades/Modoc Plateau	Fishhole Creek	2.18
East Cascades/Modoc Plateau	North Fork Willow Creek-Willow Creek	2.13
East Cascades/Modoc Plateau	Upper Chewaucan River	2.12

Some Priority Vertebrate Species associated with Springs and Seeps in the Pacific Northwest Coast Ecoregion (see *PriorityVertsXPriorityHabitat.xlsx*) include:

Dunn's Salamander
Elk
Olympic Torrent Salamander
Southern Torrent Salamander

Priority Plant Species associated with Springs and Seeps in the Pacific Northwest Coast Ecoregion (see *PriorityPlantsXHabitat.xlsx*) include:

Anemone oregana var. *felix* (Bog Anemone)
Bensoniella oregana (Bensoniella)
Erigeron cervinus (Siskiyou Daisy)
Erythronium elegans (Coast Range Fawnlily)
Iliamna latibracteata (California Globe-mallow)

Priority Invertebrate Species associated with Springs and Seeps in the Pacific Northwest Coast Ecoregion include:

Columbia Oregonian
 Evening Fieldslug
 Green Sideband
 Pacific Walker
 Robust Walker

Some Priority Vertebrate Species associated with Springs and Seeps in the East Cascades/Modoc Plateau Ecoregion include:

Elk
 Cascades Frog
 Mule deer

Ecoregional Priority Plant Species associated with Springs and Seeps in the East Cascades/Modoc Plateau Ecoregion include:

Botrychium montanum (Mountain Moonwort)
Calamagrostis breweri (Brewer's Reedgrass)
Delphinium viridescens (Wenatchee Larkspur)
Sullivantia oregana (Oregon Sullivantia)

In the Pacific Northwest Coast Ecoregion on the wet west side of the Cascades, conservation efforts should be focused on avoiding Springs and Seeps when constructing roads, conducting timber sales, and directing recreational use (e.g., hiking trail routes). Restoration efforts could be focused on reintroducing native plant species and placement of woody debris nearby.

In the drier environment of the East Cascades/Modoc Plateau Ecoregion (Table 2-19), Springs and Seeps become critically important to wildlife and plants, particularly during the summer and fall. In this ecoregion, conservation efforts will be similar to the wet west side with additional protection and restoration efforts aimed at excluding grazing animals and protecting these areas from fire or fire suppression actions. Biologists and botanists should look for opportunities to work with fire/fuels staff during fire suppression to protect these sensitive areas, and engage range staff to keep cattle out of these habitats.

Work with the ISSSSP and fisheries, hydrology, geology and soils staffs to develop project ideas and secure funding for protection or restoration of Springs and Seeps. Opportunities to work with the PNW Research Station and PARC on amphibians associated with this habitat should also be explored.

Watershed Examples

Habitat Conservation and Restoration Watersheds

Habitat Conservation and Restoration (HCR) Watersheds were selected based on abundance of one or more of six regional highest priority habitats. Individual RAs for HCR habitats start at 2.0, and the number of HCR Watersheds containing significant amounts of each key habitat varies:

- Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock (9 AUs, RA \geq 2.0).
- Eastside Late-seral Mixed Conifer (9 AUs, RA \geq 2.3).
- Southeast Late-seral Mixed Conifer (10 AUs, RA \geq 2.9).
- Late-seral Ponderosa Pine (10 AUs, RA \geq 2.5).
- Oak and Pine (6 AUs, RA \geq 2.0).
- Aspen (12 AUs, RA \geq 2.6).

These HCR Watersheds contain some of the best remaining examples of Regionally important threatened or widely degraded habitats in the region. One approach to landscape-level restoration in these places is to start by identifying core areas of intact habitat, then maintain and protect these core areas and restore or treat surrounding habitats to increase desirable characteristics. The result is large blocks of high quality habitat that support specialist species and resist catastrophic disturbance.

Conservation may include active management. For example, in late-seral Ponderosa Pine stands, it may be necessary to treat fuels to reduce loss of large pines to uncharacteristic fire. Treatments in surrounding habitats may include thinning to enhance late-successional characteristics, or creating fuels breaks around core areas to reduce potential for loss due to uncharacteristic fire.

The *ConserveRestoreWS.xlsx* spreadsheet lists HCR Watersheds and the Priority Habitats that contributed to the selection of the watershed. The spreadsheet is sorted by ecoregion and the user can filter by ecoregion, watershed, or habitat. Once the watershed is identified, go to the appropriate appendix to get available information.

Late-seral Ponderosa Pine

Late-seral Ponderosa Pine habitat. Late-seral Ponderosa Pine habitat has declined more dramatically than any other forested habitat of the Interior Pacific Northwest (Wisdom et al. 2000). Ponderosa Pine and other dry forest types are the target of most restoration and fuels reduction projects in the Pacific Northwest Region. Ten watersheds were identified as priorities for Late-seral Ponderosa Pine because they contained the best representation of the habitat at the Regional scale (Table 2-20).

Table 2-20. HCR Priority Watersheds for Late-seral Ponderosa Pine habitat.

Watershed	Ecoregion	RA
Deep Creek	Columbia Plateau	5.01
Rock Creek-Buck Creek	Columbia Plateau	5.01
Upper North Fork Crooked River	Columbia Plateau	4.95
Squaw Creek	Columbia Plateau	3.85
Upper Beaver Creek	Columbia Plateau	3.62
Murderers Creek	Columbia Plateau	3.43
Potter Canyon-Deschutes River	Columbia Plateau	2.94
Twelvemile Creek	Middle Rockies/Blue Mountains	2.85
Wall Creek	Columbia Plateau	2.55
Walker Creek	East Cascades/Modoc Plateau	2.5

Twelvemile Creek is one of the top ten watersheds in the Region for Late-seral Ponderosa Pine habitat based on high RA values; it is in the Middle Rockies/Blue Mountains Ecoregion (Appendix N) on the Malheur National Forest. The watershed is also important for four Priority Vertebrate Species, other Priority Habitats, and several Economically Important Vertebrates (Tables 2-20a, b, c).

Table 2-20a. Priority Vertebrates for Late-seral Ponderosa Pine habitat.

Common Name	Scientific Name	RA
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.29
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.11
Flammulated Owl	<i>Otus flammeolus</i>	1.08
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.00

Table 2-20b. Priority Social/Economic Vertebrates for Late-seral Ponderosa Pine habitat.

Common Name	Scientific Name	RA
Elk	<i>Cervus canadensis</i>	1.14
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Table 2-20c. Other Priority Habitats for Late-seral Ponderosa Pine habitat.

Priority Habitat	RA
Late-seral Ponderosa Pine	2.85
Wet Meadows	1.41
Shrub Steppe	1.37

Regional-scale habitat modeling identified 2016 acres of quality late-successional Ponderosa Pine habitat in this watershed. Forest and District level resource specialists have better information to delineate the best representation of this habitat in this watershed. Restoration activities can be designed within and adjacent to these habitat core areas to protect or restore habitat for the associated vertebrate species. For example, typical thinning and prescribed burning in overstocked or young pine stands improves habitat for deer and elk; these projects generate wildlife, forest products, and fuels reduction benefits and can even sometimes create or enhance other important habitats including dry and wet meadows.

Southeast Late-seral Mixed-conifer habitat. Indian Creek watershed in the Siskiyou Mountains of the Klamath Ecoregion is designated as a Habitat Conservation and Restoration Watershed because it is one of the top 10 in the Region for Southeast Late-seral Mixed-conifer habitat. Because of these old-growth conifer stands Indian Creek provides essential habitat for a number of old-growth dependent vertebrates; the watershed also supports significant numbers of the narrow serpentine endemic *Phacelia leonis* (Tables 2-21a, b, c).

Table 2-21a. Priority Vertebrates for Southeast Late-seral Mixed Conifer habitat.

Common Name	Scientific Name	RA
Black Salamander	<i>Aneides flavipunctatus</i>	2.56
Del Norte Salamander	<i>Plethodon elongatus</i>	2.01
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.84
Ringtail	<i>Bassariscus astutus</i>	1.79
Flammulated Owl	<i>Otus flammeolus</i>	1.45
Fisher	<i>Martes pennanti</i>	1.44
Western Gray Squirrel	<i>Sciurus griseus</i>	1.24
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	1.15

Table 2-21b. Priority Plants for Southeast Late-seral Mixed Conifer habitat.

Common Name	Scientific Name	Group	RA
Siskiyou Phacelia	<i>Phacelia leonis</i>	Vascular Plants	8.30

Table 2-21c. Other Priority Habitats for Southeast Late-seral Mixed Conifer habitat.

Priority Habitat	A
Southeast Late-seral Mixed Conifer	3.42
Southwest Oregon Mixed Pine	2.74
Late-seral High-elevation Fir Forests	1.84

Because catastrophic wildfire has the potential to destroy huge swaths of forest in the Klamath Ecoregion in Southeast Late-seral Mixed-conifer habitat, thinning with wood production is a typical forest treatment that enhances old growth character and supports threatened wildlife and plants. Forest Service personnel from many disciplines can use a broad range of fund types to do integrated work that benefits communities through fuels reduction, generates timber revenue, and enhances diversity.

Integrated Priorities Watersheds

Integrated Priorities Watersheds are areas that represent high overall biodiversity; are rich in Priority Vertebrates, Socially and Economically Important Vertebrates, Priority Plants, or Priority Habitats; or integrate high abundance for multiple target groups, e.g., both Priority Vertebrates and Priority Habitats. Integrated Priorities Watersheds met one or more of the following conditions:

- One of the top 10 AUs with a TNC biodiversity score of ≥ 90 .
- The AU had one of the top 10 group RA scores within each priority group, except invertebrates.
- The AU had one of the top 30 integration scores.

Priority Species and Priority Habitats often overlap within an ecoregion, and frequently habitat improvement and enhancement will also improve conditions for existing Priority Species. The *PriorityVerteXPriorityHabitat.xlsx* spreadsheet displays the relationship between Priority Vertebrate Species and Priority Habitats; each ecoregion is displayed on a separate worksheet. The spreadsheet *PriorityPlantsXHabitat.xlsx* contains similar information for plants.

Upper Applegate River (TRACS-72) Integrated Priorities Watershed. This watershed, located in the Klamath Mountains Ecoregion, is a priority because it is one of the top 10 in the Region for biodiversity, and is especially rich in Priority Vertebrates (Tables 2-22a, b, c).

Table 2-22a. Priority Vertebrates for TRACS-72 Integrated Priorities Watershed.

Common Name	Scientific Name	RA
Siskiyou Mountains Salamander	<i>Plethodon stormi</i>	3.36
Black Salamander	<i>Aneides flavipunctatus</i>	2.49
Foothill Yellow-legged Frog	<i>Rana boylei</i>	1.58
Flammulated Owl	<i>Otus flammeolus</i>	1.24
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	1.22
Fisher	<i>Martes pennanti</i>	1.19
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.18
Western Gray Squirrel	<i>Sciurus griseus</i>	1.16
Ringtail	<i>Bassariscus astutus</i>	1.01

Table 2-22b. Priority Invertebrates for TRACS-72 Integrated Priorities Watershed.

Common Name	Scientific Name	RA
Siskiyou Shoulderband	<i>Monadenia chaceana</i>	2.42

Table 2-22c. Priority Habitats for TRACS-72 Integrated Priorities Watershed.

Priority Habitat	RA
Springs and Seeps	2.19

Projects can often be designed to benefit many priority species and improve shared habitat. In the Upper Applegate River watershed, as elsewhere, both Northern Spotted Owl and Fisher require old growth structure, downed wood, and snags. Thinning with snag retention or light prescribed burns will benefit these species and others, and enhance habitat resilience.

Horse Creek (TRACS-29) Integrated Priorities Watershed. This watershed, located in the West Cascades Ecoregion, is a priority because it is one of the top 10 in the Region for Priority Plant species (Table 2-23).

Table 2-23. Priority Plants for TRACS-29 Integrated Priorities Watershed.

Common Name	Scientific Name	Group	RA
Fungus	<i>Gastroboletus vividus</i>	Fungi	5.53
Fungus	<i>Martellia idahoensis</i>	Fungi	5.53
Moss	<i>Bryum calobryoides</i>	Nonvascular Plants	4.83
Liverwort	<i>Chiloscyphus gemmiparus</i>	Nonvascular Plants	4.83
Fungus	<i>Chroogomphus loculatus</i>	Fungi	4.43
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	1.76

Several Priority Plants or plant allies occur in the Priority Habitat Late-seral High-elevation Fir Forest, including the liverwort *Chiloscyphus gemmiparus*, and fungi *Gastroboletus vividus* and *Martellia idahoensis*. RA values for these species are extremely high, indicating that most of the regional populations occur in Horse Creek Watershed. Actions that enhance old-growth character including thinning and prescribed burning to minimize catastrophic wildfire will benefit these species as well as many rare and sensitive vertebrates. Fuels and vegetation management disciplines are natural internal partners for this work.

This watershed also has high RA values for Priority Habitats and a moderate RA value for Priority Vertebrates.

Priority Habitats

- Late-seral High-elevation Fir Forest
- Wet Meadows
- Springs and Seeps
- Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock
- Deciduous Riparian (Willows and Other Shrubs)

Priority Vertebrates

- American Marten
- American Peregrine Falcon

- Bufflehead
- Cascades Frog
- Dunn’s Salamander
- Harlequin Duck
- Northern Goshawk
- Northern Spotted Owl
- Oregon Slender Salamander
- Pika
- Western Gray Squirrel

Although Horse Creek is a Regional Priority Watershed for plant species, there are also opportunities to conserve and restore Priority Habitats and Vertebrates in this watershed. For example, the Priority Vertebrate Species Northern Spotted Owl, Oregon Slender Salamander, and Northern Goshawk all occupy the Priority Habitat Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock, so conserving and restoring this habitat maximizes benefits to many key species.

Upper Metolius River (TRACS-76) Integrated Priorities Watershed. This watershed, located in the East Cascades/Modoc Plateau Ecoregion is a priority because it is one of the top 30 in the Region for integration of priorities, due to high RA values for priority plants, priority habitats and priority vertebrates (Tables 2-24a, b ,c).

Table 2-24a. Priority Plants for TRACS-76 Integrated Priorities Watershed.

Common Name	Scientific Name	Group	RA
Fungus	<i>Hygrophorus caeruleus</i>	Fungi	5.11
Peck's Penstemon	<i>Penstemon peckii</i>	Vascular Plants	4.86
Fungus	<i>Alpova alexsmithii</i>	Fungi	4.82
Lichen	<i>Chaenotheca subroscida</i>	Fungi	4.13
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	1.49

Table 2-24b. Priority Habitats for TRACS-76 Integrated Priorities Watershed.

Priority Habitat	RA
Cottonwood Riparian	1.94
Deciduous Riparian (Willows and Other Shrubs)	1.71
Eastside Late-seral Mixed Conifer	1.40
Late-seral High-elevation Fir Forests	1.39
Late-seral Ponderosa Pine	1.24
Springs and Seeps	1.03
Southeast Late-seral Mixed Conifer	1.00

This watershed also has moderately high RA values for biodiversity and Socially and Economically Important Vertebrates including:

- Ruffed Grouse
- Elk
- Wild Turkey

Table 2-24c. Priority Vertebrates for TRACS-76 Integrated Priorities Watershed.

Common Name	Scientific Name	RA
Bufflehead	<i>Bucephala albeola</i>	2.39
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	2.16
American Marten	<i>Martes americana</i>	2.02
Great Gray Owl	<i>Strix nebulosa</i>	1.93
Boreal Owl	<i>Aegolius funereus</i>	1.83
Western Gray Squirrel	<i>Sciurus griseus</i>	1.76
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.73
Flammulated Owl	<i>Otus flammeolus</i>	1.66
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.61
Northern Goshawk	<i>Accipiter gentilis</i>	1.57
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.50
Cascades Frog	<i>Rana cascadae</i>	1.47
Pika	<i>Ochotona princeps</i>	1.21
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.07

In the Upper Metolius Watershed, Late-seral Ponderosa Pine is a critical Priority Habitat that sustains several Priority Species (Silver-haired Bat, Pinyon Jay, Williamson's Sapsucker, Flammulated Owl, Peck's Penstemon, the lichen *Chaenotheca subroscida*, and the fungus *Hygrophorus caeruleus*). Conserving and restoring this one Priority Habitat benefits multiple species and maximizes the benefits of conservation and restoration efforts.

Biologists and botanists should look for opportunities to work with staff from timber, silviculture, and fire and aviation management to conserve and restore these habitats. Working with geology and soils staffs could lead to additional opportunities.

Outside partners could include the National Forest Foundation, The Nature Conservancy, and National Audubon Society.

Tracking Accomplishments

The success of the Terrestrial Restoration and Conservation Strategy can be measured in many ways, some of which translate into measurable accomplishments like acres of habitat enhanced, species conservation actions taken, or internal integration and collaboration with partners during landscape stewardship projects. Accordingly, the Wildlife, Fish, and Rare Plants (WFRP) database will be used to assess and report TRACS accomplishments. All of the TRACS priority species and habitats have been entered into WFRP so that this database can be queried by Priority Species or Habitats to identify projects that incorporate TRACS. Accomplishments can then be evaluated and summarized annually by Regional Office staff, and used to guide funding and resource allocation decisions.

TRACS accomplishments will be summarized according to the following three components: Core, Integrated, and Partnership accomplishments.

Core TRACS Accomplishments – These are TRACS-centric projects for Priority Species, Habitats, and Watersheds initiated by wildlife biologists and botanists that are funded through core budget line items of NFWF or

NFVW. Wildlife biologists and botanists can work together with similarly-funded programs like fisheries, aquatics, and soils to achieve landscape-level habitat improvements that benefit overall diversity and ecosystem function.

Integrated TRACS Accomplishments – These are projects that integrate TRACS accomplishments into projects with multiple objectives and are completed through collaboration with other program areas. The majority of strategic TRACS restoration and enhancement accomplishment will be achieved working collaboratively with other FS programs such as vegetation management, silviculture, fire/fuels, or engineering that have the skills and funding to do large-scale habitat enhancement and restoration work. Since opportunities to address TRACS objectives overlap with core objectives of many resource areas, wildlife biologists and botanists should use the TRACS tools to steer integrated project work to locations where it will help accomplish strategic TRACS restoration and enhancement priorities as well as objectives for other program areas.

TRACS Partnership Accomplishments – These are TRACS accomplishments completed through projects with partners external to the Forest Service. External partners play a huge role in our accomplishments and success, contributing several million dollars each year in cash and in-kind contributions as well as enthusiasm, expertise and support. Building TRACS priorities into future collaborations will help ensure that regional priority work results.

Final Thoughts

Agency priorities and biotic information change quickly, so the goal is for Regional and Forest wildlife biologists and botanists to consider revising TRACS five years from the date of the final report. In the interim, new federally listed or candidate species will be added as priorities wherever they occur in the Region, but no other updates will occur.

The species, habitat, and watershed priorities presented here can be used creatively across Region 6 to focus important restoration work on regionally and globally significant natural resources, particularly as part of the Agency's new initiative called Integrated Resource Restoration (IRR). This new emphasis comes complete with its own congressional budget line item (called NFRR, National Forest Resource Restoration), and is an overarching priority for the U.S. Congress and the Chief. The R6 Terrestrial Restoration and Conservation Strategy supports rapid adoption of IRR in Region Six, in the many ways outlined throughout the Strategy. To recap briefly, the Strategy will help:

- Guide planning, funding, and implementation of conservation, restoration, and enhancement activities in Forest and Regional programs of work and projects.
- Encourage integration among FS programs.
- Identify collaborative project opportunities across administrative boundaries with internal and external partners.
- Guide integration with other broad landscape-level planning efforts such as Forest watershed action plans.
- Inform development of species and habitat conservation plans at all organizational levels.
- Provide an effective stewardship tool for developing more resilient and sustainable habitats and landscapes for wildlife and plants.

The majestic landscape and irreplaceable resources that it is our charge to safeguard deserve no less.

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US Forest Service Region 6 Terrestrial Prioritization: Species and Habitat Lists and Spatial Prioritization



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TRACS: Appendix A

The Nature Conservancy prioritization process for USFS Region 6

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TRACS: Appendix A

The Nature Conservancy prioritization process for USFS Region 6

Introduction

In September 2009, Region 6 of the U.S. Forest Service contracted with The Nature Conservancy to:

1. Develop a process to prioritize species and habitats for conservation and restoration on Forest Service land by ecoregion, and
2. Develop a process to identify landscape priorities based on priority species and habitats by ecoregion.

Throughout the contract period the Conservancy worked closely and interactively with the Terrestrial Restoration and Conservation Strategy Team (the Team) of the Forest Service - Sara Madsen, Robert Alvarado, Vicky Ericson, Russell Holmes, Kim Mellon-Mclean, William Otani, Elaine Rybak, and Mark Skinner. The Conservancy used a combination of a species' global status (The Nature Conservancy and Association for Biological Information 2000) and distribution to develop a prioritized list of species by ecoregion. Distribution was calculated using Element Occurrence data (The Nature Conservancy 2010) and species distribution models (ORNHIC 2008). Habitats were identified and initially prioritized by the Forest Service. Both processes utilized terrestrial ecoregional boundaries as delineated by The Nature Conservancy, based on work by Bailey (1995) and Olson and Dinerstein (2002).

Landscape prioritization followed The Nature Conservancy's Ecoregional Assessment methodology (Groves et al. 2000, 2002) which incorporates species prioritization into a geographic analysis by ecoregions using watershed assessment units and an optimization tool, MARXAN (Possingham et al. 2000).

This report describes those processes and presents the resulting products. The purpose of the USFS's "Terrestrial Restoration and Conservation Strategy" (TRACS) is to guide the improvement of terrestrial habitat conditions on National Forest land throughout the Pacific Northwest Region (Region 6) by prioritizing species, habitats and sub-watersheds for Conservation, Restoration, or Enhancement activities. *Conservation* is aimed at protecting and maintaining healthy and functional habitats, and *Restoration* focuses on improving degraded habitats. *Enhancement* will improve conditions for featured species and habitats (USFS 2010). The contract with The Conservancy was to assist with prioritizing species, habitats, and watersheds for the first two activities, Conservation and Restoration.

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Species and Habitats Prioritization Lists

Vertebrate Species Lists

The Conservancy first developed a master vertebrate list by incorporating all vertebrates from several existing state and federal lists. These lists included:

- USFS Priority Vertebrates list (USFS Region 6, 2009; 197 species)
- Regional Forester's Special Status Species List (which includes federally listed, proposed, and sensitive species) (USFS Region 6, 2008; 75 species)
- Strategy Species list from the Oregon Conservation Strategy (ODFW 2006; 102 species)
- Species of Greatest Conservation Need list from Washington's Comprehensive Wildlife Conservation Strategy (WDFW 2005; 110 species)
- Conservation targets from The Nature Conservancy's 11 Ecoregional Assessments in Oregon and Washington (276 vertebrate species).

Vertebrates from these lists were cross-walked to NatureServe standard taxonomy. Attributes such as Global and State rank, IUCN status, US ESA status and CITES status were updated by the Oregon Natural Heritage Information Center (ORNHIC, now the Oregon Biodiversity Information Center, or ORBIC) and assigned to each species. The resulting master list included 357 species, subspecies or population segments.

The Forest Service is required to manage for federally listed and candidate species so these were automatically on the priority list and not included in the filtering process below. Similarly, the Forest Service identified eleven vertebrate species of social and economic importance which were kept on the priority list and are not included in the filtering process below.

For the remaining species we used the following process to develop a list of priority vertebrate species by ecoregion for conservation and restoration on Forest Service land. Each step is explained in more detail in the sections below.

1. Filter list based on questionable taxonomy, documented presence of the species in the region and on Forest Service land, and terrestrial vs. marine distribution.
2. Reduce remaining list based on percent of habitat distribution on Forest Service land in the region.
3. Further refine and prioritize list based on a combination of species rank and distribution on Forest Service land in the region to develop a regional rank.
4. Assign species to ecoregions based on regional rank and distribution on Forest Service land.

1. Initial Filtering of Master List

Most vertebrates that occurred on any of the Forest Service lists were included initially in the prioritization of species by ecoregion across USFS lands in Oregon and Washington. Vertebrate

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species from the ODFW, WDFW and TNC original lists were removed from consideration if they:

- were subspecies that were better assessed using the full species;
- had recently changed or questionable taxonomy;
- were presumed extirpated;
- were ecoregional targets in portions of ecoregions outside of Oregon and Washington;
- did not have viable element occurrences on USFS managed lands in Region 6;
- were non-breeding residents in Region 6; or
- had marine or coastal based habitats.

These actions reduced the vertebrate list from 357 to 203 species. Of the remaining 203 vertebrates, 197 were on the USFS list, 143 were Conservancy ecoregional targets, 72 were Strategy species from the Oregon Conservation Strategy, and 65 were Species of Greatest Conservation Need from Washington's Comprehensive Wildlife Conservation Strategy.

2. Calculate Percent of Species Habitat on Forest Service Land

The list was further filtered to only include those vertebrates that have enough of their habitat on Forest Service land for agency conservation and restoration activity to make a difference. To do this we mapped the predicted distribution of each of the vertebrates, defined land ownership boundaries and overlaid the predicted distribution on Forest Service land to calculate percent of each vertebrate's habitat on land managed by the Forest Service.

Map predicted distribution:

Two different sets of vertebrate distribution models were available, one for Oregon and one for Washington. In Oregon we used species distribution grids developed by the Oregon Natural Heritage Information Center (ORNHIC 2008). These grids are a third generation product that represent several data layers. For a description of the models see:

<http://oregonexplorer.info/Wildlife/about/mammals.aspx?Res=17413>. In Washington, predicted distribution coverages were used from the WDFW Washington GAP Data (Johnson and Cassidy 1997). These coverages are based on known distributions and a 1991 land cover map. For more information on these data see: <http://wdfw.wa.gov/conservation/gap/vertebrate.html>.

Both models contained information on habitat quality. The Oregon models identify three levels of habitat quality: poor, fair and good. In Washington the models identify two levels of habitat: core and peripheral. We used full distribution irrespective of habitat quality so that habitat could be mapped consistently across states and to avoid limiting the potential range for some species by only assessing the highest habitat category.¹

We worked with ORNHIC and the Forest Service Team to assess the distribution of subspecies on the list. Most often we opted to use the full species models to assess the subspecies (e.g.

¹ Depending on the nature of the condition, habitat that is currently classified as fair may be improved through management, and a changing climate might cause shifts in species peripheral habitat.

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Blotched Tiger Salamander, Northern Red-legged Frog, California Wolverine). In other cases portions of the models were used. For example, for the Slender-billed White-breasted Nuthatch and Townsend's Western Big-eared Bat, only the portion of their species models west of the crest of the Cascades were used.

Three species were assessed using element occurrence (EO) data (TNC 2010). One species, Pine Siskin, had corrupt data in Washington, but is known to have a large distribution there. Also, there were no models available for Columbian Sharp-tailed Grouse or Wallowa Rosy-finch.

Determine Land Management Boundaries

To evaluate a species distribution across ownerships we relied on ownership data from the Interior Columbia Basin Ecosystem Management Project (ICBEMP) for both Oregon and Washington because it was consistent for the region. These data were used to assess three land management classes: USFS lands, other public lands, and private lands.

Some lakes, attributed as “open water” could not be assigned a land management class. Portions of the Idaho Panhandle National Forest (Kaniksu Forest) and Klamath National Forests in WA and OR were classed as “Other Public” as they are not managed by Region 6 of the Forest Service. The small portion of the Rogue-Siskiyou National Forest in California was not included in the final analysis due to data differences and complications when including another state. These land management boundaries were also used in the development of the priority plants and invertebrate lists described later.

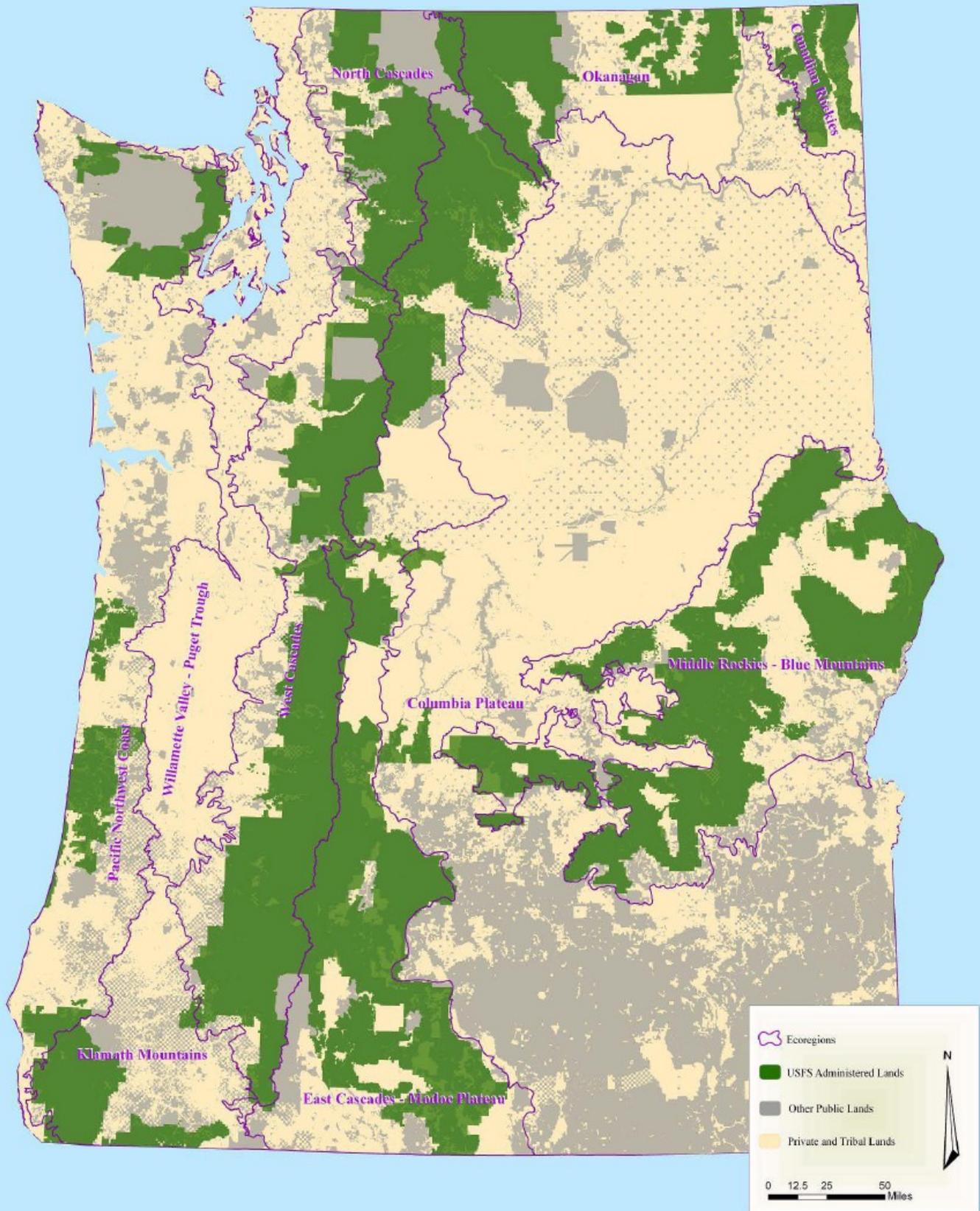
Calculate percent of each species' total habitat on Forest Service land

The land management categories were combined with the 11 ecoregions in Oregon and Washington (Figure 1) as delineated by The Nature Conservancy, based on work by Bailey (1995) and Olson and Dinerstein (2002). For each vertebrate species we calculated hectares in each land management category within each ecoregion. We evaluated the importance of Forest Service land for a species' conservation and restoration by calculating the percentage of its predicted distribution on Forest Service land, other public land, and private ownership. In consultation with the Forest Service Team, we decided to include on the priority list only species with greater than 25% of their modeled distribution on Forest Service land within Region 6.

One species, Least Flycatcher, had greater than 25% of its habitat within Region 6 on Forest Service land, but this totaled less than 100 ha and was dropped from the list. The Conservancy feels it would be more effective to manage for this species where it is more abundant in other portions of its range and in other regions of the Forest Service.

Based on the greater than 25% rule the vertebrate list was further reduced to 121 species.

Figure 1. Ecoregions in Oregon and Washington with USFS Region 6 managed lands.



Map Produced by Michael Schindel
January 19th, 2011

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3. Filter List Based on Species Rank and Distribution on Forest Service Land

Each species was given a rank of Very High (VH), High (H), Medium (M) or Low (L), depending on a combination of Global (G) and State (S) ranks. This attribute was called Combined Element Rank, and the matrix used to develop these ranks is below.

	S1 – S2	S3	S4 – S5
G1 – G2	VH		
G3	H	H	
G4 – G5	M	M	L

Each species was also assigned a Land Area Distribution Rank of High or Very High based on the % of their total distribution on Forest Service land.

% USFS Land	Land Area Distribution Rank
25-50%	H
50-100%	VH

Finally, the Combined Element Rank and Distribution Rank were used to develop a **Regional (R6) Rank** for each vertebrate based on the matrix below.

Combined Element Rank	Land Area Distribution Rank	
	25 - 50% H	> 50% VH
VH	High	Very High
H	High	Very High
M	Medium	High
L	Low	Medium

In consultation with the Forest Service Team we filtered out species with a Regional Rank of Low leaving a total of 94 vertebrates on the priority list (See Appendix 1).

4. Assign Species to Ecoregions Based on Distribution and Regional Rank

Even though a species had at least 25% of its range on Forest Service land, that range may be spread out across multiple ecoregions so that in any one ecoregion the habitat of a vertebrate might be too small to warrant or benefit from Forest Service management. To address this issue we assessed total distribution of each vertebrate by ecoregion. Using the previously modeled distributions we calculated the percent of the total distribution of each of the vertebrates on Forest Service land within each ecoregion. To be included in the list of priority vertebrates on Forest Service land within an ecoregion a species needed to pass a percentage of total distribution cut-off based on its Regional Rank (see above), which takes into account how at-risk

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a species is through the G and S ranks. A species with a Regional Rank of Very High had to have more than 5% of its total distribution in Oregon and Washington on Forest Service land within an ecoregion to be included on that ecoregion's list. Species with a Regional Rank of High needed to have more than 10% of its total distribution on Forest Service land within an ecoregion and a species with a Regional Rank of Medium, greater than 20% of its distribution.

This assessment reduced the list of vertebrates to 71. There were 23 species that met the 25% on Forest Service land cut off but could not meet distribution cut-offs for any of the ecoregions (Appendix 1). Of the 71 vertebrates remaining 24 were listed in just one ecoregion, 15 in two, 9 in three and 1, the California Wolverine, in 5 ecoregions. Appendix 2 shows all 71 species and the ecoregions that the Conservancy has listed them in. The eleven ESA species and the eleven Social and Economic species were automatically in the priority list and we did not try to calculate percent distribution on Forest Service land. These species are listed in Appendix 2 as either ESA or SE (Social and Economic) and are simply recorded as present in ecoregions based on their occurrences and modeled distribution.

Ecoregions	Number of Priority Vertebrates
Pacific Northwest Coast	11
Willamette Valley/Puget Trough	5
North Cascades	8
East Cascades	27
West Cascades	26
Klamath Mountains	11
Colombia Plateau	3
Middle Rockies/Blue Mountains	24
Canadian Rockies	5
Okanagan	14

In summary, the Conservancy identified 71 vertebrates that we recommend as regional priorities for the Forest Service in Region 6.

Plant Species Lists

The starting list for plants was the Regional Forester's Special Status Species List (USFS Region 6, 2008), which contained 542 plants, and they were all crosswalked to NatureServe standard taxonomy. Attributes such as Global and State rank, IUCN status, US ESA status and CITES status were updated by the Oregon Natural Heritage Information Center (ORNHC). In addition, we documented which species were also Strategy Species from the Oregon Conservation Strategy (ODFW 2006) (the Washington State Conservation Strategy did not address plants) or an ecoregional target for the Conservancy in any of the 11 ecoregions in Oregon and Washington.

All element occurrence data available for Oregon and Washington (TNC 2010) were intersected with the land management data and ecoregions as described for vertebrates. Element occurrences with a rank of "F", "F?", "H", "X", "XE", and "X?" indicating that the occurrence was extirpated or could not be found at the last visit to the site, were removed. All other occurrences

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were used in the distribution analysis. Total numbers of element occurrences on Forest Service lands were summarized for the region and by ecoregion.

As with the vertebrates the Conservancy, with the Forest Service Team, decided to reduce the initial list of 542 species based on rank or rarity and on the importance of Forest Service land in contributing to their conservation. The Conservancy felt that restricting the priority list to only those species that are at risk globally was an appropriate approach. In consultation with the Forest Service Team a decision was made to include on a priority list only species with a global rank of G1, G2, T1 and T2. Distribution models are not available for plants so we relied on element occurrences to reflect the distribution of each species. The list was further reduced to include only those G1, G2, T1 and T2 plants with greater than 25% of their occurrences on Forest Service land in Oregon and Washington. Because of inconsistent survey effort across the National Forests, element occurrence data do not adequately represent the distribution of plant species, but the 25% cut off was deemed to be a reasonable conservative amount to identify species that depend on Forest Service managed lands.

Fifteen plants that are either listed endangered or candidates under the Endangered Species Act were included as automatic priorities regardless of percent of distribution on Forest Service land. Of the remaining 527 species, 465 species did not meet the criteria for the following reasons:

- Eleven plants met the Global rank criteria but had no data, and
- 43 met the Global rank criteria but had less than 25% of their known distribution on Forest Service lands in Region 6
- 411 species did not meet the Global rank criteria.

These actions brought the priority list of plants to 77 (Appendix 3). The number of plants by ecoregion is shown in the box below.

Ecoregions	Number of Priority Plants
Pacific Northwest Coast	10
Willamette Valley/Puget Trough	1
North Cascades	2
East Cascades	17
West Cascades	19
Klamath Mountains	20
Columbia Plateau	2
Canadian Rockies	3
Middle Rockies/Blue Mountains	20
California North Coast	0
Okanagan	4

Invertebrate Species List

A total of 77 invertebrate species were taken from the Regional Forester's Special Status Species List (USFS Region 6, 2008). We crosswalked the species to NatureServe standard taxonomy. Attributes such as Global and State rank, IUCN status, US ESA status and CITES status were updated by the Oregon Natural Heritage Information Center (ORNHC). In addition, we

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documented which species were also Strategy Species from the Oregon Conservation Strategy (ODFW 2006), Species of Greatest Conservation Need from Washington’s Comprehensive Wildlife Conservation Strategy (WDFW 2005), or an ecoregional target for the Conservancy in any of the 11 ecoregions in Oregon and Washington.

All element occurrence data available for Oregon and Washington (TNC 2010) were intersected with the land management data and ecoregions described for vertebrates. Element occurrences with a rank of “F”, “F?”, “H”, “X”, “XE”, and “X?” indicating that the occurrence was extirpated or could not be found at the last visit to the site, were removed. All other element occurrences were used in the distribution analysis. Total numbers of occurrences on Forest Service lands were summarized by ecoregion.

The element occurrence database contains known occurrences of species; however, we feel that invertebrates are under-surveyed, and their documented occurrences do not reflect their distribution across the state. For this reason it was not possible to obtain a realistic percentage of the distribution of invertebrates on Forest Service managed lands so we did not use distribution in this analysis to help set priorities. We chose to focus solely on global ranks. A decision was made to include on the priority list all G1, G2, T1 and T2 species regardless of EO data.

Of the 77 species, 37 did not meet the Global rank criteria or were only suspected on Forest Service lands and therefore not priorities. With the agreement of the Forest Service Team we removed five species not previously described (unpublished). These actions brought the priority list of invertebrates to 35 including two that are candidates or listed under the Endangered Species Act (Appendix 4).

Habitats Priority List

The Conservancy was not involved in the selection of habitats. Forty eight priority habitats were identified by the Forest Service Team and reviewed by Forest Wildlife Biologists and Botanists in Region 6. This list of habitats did not follow a standard classification and only 16 of the habitats, listed below, were considered mappable by the Conservancy and ORNHIC.

Mapped Habitats	
Aspen Forests and Woodlands	Late Seral Ponderosa Pine
Chaparral	Late Seral Tanoak
Forested swamps	Mountain Mahogany
Lakes and ponds	Oak and Pine
Late Seral Juniper	Serpentine Wetlands
Late Seral Low & Mid Elevation Douglas-fir - Western Hemlock	Wet Meadows
Late Seral Mixed Conifer – Eastside	White Oak
Late Seral Mixed Conifer – Southeast	Whitebark Pine Subalpine Woodland

Datasets used to map these include land use, ecological systems, National Wetland Inventory, and Gradient Nearest Neighbor data. The mapped priority habitats were included in the GIS data provided to the Forest Service and were also used in the Marxan analysis (see Landscape Prioritization, below). Late seral habitats were defined following the Forest Service Team’s definition based on trees per hectare greater than 20” dbh.

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Landscape Prioritization

In order to identify priority HUC 6s within each forested ecoregion in Oregon and Washington as part of our landscape prioritization analysis, we used the conservation planning tool MARXAN (Marine Reserve Design Using Spatially Explicit Annealing, Ball and Possingham 2000; Possingham et al. 2000). The MARXAN program optimizes the selection of assessment units (AUs) by assessing the suitability values for all selected AUs and the penalties for not meeting species and habitat benchmarks. It begins by selecting a random set of AUs to meet the benchmarks and then iteratively explores improvements to this initial set of AUs by randomly adding or removing them literally millions of times (i.e., iterations) per MARXAN run. The algorithm uses a method called simulated annealing (Kirkpatrick et al. 1983) to reject sub-optimal solution sets, thus greatly increasing the chances of converging on a very efficient solution.

Assessment Units

The Marxan analysis tool requires all data be summarized by some polygonal feature, and 6th field watersheds (HUC 6s) were selected for this project. HUC 6s are meaningful ecological units of sufficient size such that management activities can be undertaken within them to benefit the species and habitats they support.

Watershed boundaries were originally delineated by Pacific Northwest (PNW) Hydrography Framework Partners and Natural Resources Conservation Service (NRCS) to meet state and national Water Boundary Dataset requirements.

Each original HUC 6 was assigned to one or more of the 11 terrestrial ecoregions in Figure 1 (TNC 2010) based on Olson and Dinerstein (2002) and Bailey (1995). In cases where two or more ecoregions intersected a HUC, that HUC was either 1) assigned to the ecoregion that contained the majority of its area ($\geq 70\%$) using an automated process or 2) were manually inspected to determine if they should remain split or be assigned to one ecoregion and re-merged with their other fragment(s). In most cases, splits occurred where elongated HUCs stretched far into the adjacent ecoregion. Approximately 10% of the 5,775 HUC 6s were split amongst two or more ecoregions.

There were three ecoregions that had only small amounts of Forest Service lands within them. The small portion of the Northern California Coast ecoregion in SW Oregon was appended onto the PNW Coast ecoregion, as that tip of the ecoregion resembles the PNW Coast ecoregion more so floristically than the Klamath Mountains. The Columbia Plateau and Willamette Valley/Puget Trough ecoregions had minimal amounts of forests and Forest Service managed lands in them; therefore, the following spatial analyses and results are relevant and presented in this report for only the eight other ecoregions comprising 3,410 HUC 6 AUs.

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Species Lists and Data Rules for Marxan

In addition to the species and habitat priority lists described above, we developed separate lists and datasets of species and habitats that would act as targets for the spatial assessment of landscape priorities. These lists were longer and more inclusive than the highest priorities in the species and habitat lists, but the relative importance was maintained by the setting of variable benchmarks, as explained later. These lists were based on the following basic criteria, but see the following text for more specific rules.

Species Group	Criteria for Target list	Data used in Marxan runs
Vertebrates	Priority Species with Regional Rank of Very High, High and Medium; ESA and Social / Economic Priority Species	New 2010 models developed by ORNHIC; element occurrence data (only QC Pass); additional models for Turkey and deer from USFS
Plants	All G1, G2, G3, T1, T2, and T3 priority species with element occurrence data in OR and WA	EO data (QC Pass: Almost all are Post 1979, element occurrence rank higher than D.)
Invertebrates	All G1, G2, G3, T1, T2, and T3 priority species with element occurrence data in OR and WA	EO data (only QC Pass: Almost all are Post 1979, element occurrence rank higher than D.)
Ecological Systems	Natural system types that had at least 10% of their distribution on USFS.	NatureServe and Conservancy datasets.
Priority Habitats	All mappable priority habitats with at least 50 ha in an ecoregion.	NatureServe and TNC datasets crosswalked with input from USFS.

Vertebrates

There were 94 vertebrate species with data that met the criteria for inclusion in the landscape prioritization, as based on the definitions and filters for vertebrates through Step 3 in the first half of this report. Of the 94, 11 were listed or candidate species under the Endangered Species Act, 5 had a Regional Rank (as described in the first half of this report) of VH, 32 ranked H, 35 ranked M, and 11 were added as Social and Economic priorities by the Forest Service.

Two sets of data were used for vertebrates for the Marxan input tables. All vertebrates except for the greater sage grouse (not forest dependant), black-tailed deer (Forest Service model) and wild turkey (Forest Service model) species were modeled using new deductive wildlife habitat relationship models developed in consultation with the Forest Service by ORNHIC (ORNHIC 2010). The species were separated into Forest and Non-forest models, which used Gradient Nearest Neighbor (GNN) and Ecological Systems data, respectively. Riparian obligate species models were modified by the Conservancy because their distributions were overestimated by the GNN data. For these species, the amount of habitat in each watershed was calculated by the area

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of riparian habitat within each HUC 6 (% of AU with lake, pond, and riparian habitat). If a species model's distribution was less than 4% of total in an ecoregion, the data for that ecoregion was dropped unless species had element occurrences that were being used (see following element occurrence rules).

We had element occurrence data for 69 of the vertebrate species. Using the occurrence ranks, we removed data that did not pass quality control, such as data prior to 1980, and ranks of D and lower (F, H, X, etc). If the species was ranked as a G2 Limited (found in 2 or 3 ecoregions) or more common and had less than 3 occurrences in an ecoregion, we did not use the element occurrence data for that ecoregion to avoid forcing Marxan to select an assessment unit when we knew the data did not represent a reasonable distribution for the species. This resulted in a total of 92 species with data in the Marxan analysis, over half of which had both modeled and element occurrence data (see submitted Geodatabase table: TGT_USFS).

Plants

There were 218 species and subspecies from the Regional Forester's Special Status Species List that met the G1-G3 or T1-T3 rules before we filtered out element occurrences that were not suitable. As with vertebrates, if a species was a G2 Limited or more common and had less than 3 occurrences, we did not use the data in the Marxan prioritization. The Forest Service has been in the process of working with ORNHIC to update their element occurrence database with data from all Region 6 Forests, but that data were not available when the Marxan model was populated. No habitat distribution models were available, and we included element occurrence data for 174 plant species in the Marxan analysis (see submitted Geodatabase table: TGT_USFS).

Invertebrates

Our initial list of G1-G3 and T1-T3 species from the Regional Forester's Special Status Species List included 55 species and subspecies. As with vertebrates, if a species was a G2 Limited or more common and had less than 3 occurrences, we did not use data in Marxan. No habitat distribution models were available, and after filtering out element occurrences that were not suitable, we included occurrence data for 48 invertebrate targets in the Marxan analysis (see submitted Geodatabase table: TGT_USFS).

Priority Habitats

Each of the 16 special habitats identified by the Forest Service and mapped by the Conservancy and ORNHIC (as in the first half of this report) had to have at least 50 ha in an ecoregion to be a target for that ecoregion.

Also, for AUs between 50 and 1,000 ha, habitats were either left as priorities for the landscape analysis if they had been identified by specific Forests in the associated ecoregion or were

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dropped if their small distributions were suspected of being modeling 'noise' (i.e., they did not agree or make sense with other base and locational data when reviewed in GIS). Lists of habitats by ecoregion and hectares are in the Geodatabase table TGMxGU_USFS, submitted to the Forest Service.

Ecological Systems

This coarse filter dataset contains current ecological systems for the full extent of Oregon and Washington based upon official NatureServe Ecological System classification v 1.13. It is an extract from The Nature Conservancy's regional data set which is continually updated. Several data sources were used in developing this layer including NW ReGAP (2009), GNN and the National Land Cover Dataset (NLCD) (2001; <http://www.mrlc.gov/>).

For each component dataset, values were crosswalked to Ecological System Life Form (ESLF) codes where available, while values falling outside ecological system classes (e.g., urban) were taken from NLCD (2001). Additional attributing was then assigned to the system types, including NatureServe element codes, wildlife habitat types, and spatial pattern (patch size). The ecological systems are a wall to wall coarse filter dataset that acts as a safety net for species that might otherwise fall through the cracks – especially plants and invertebrates, for which we did not have models for and had to rely purely on occurrence data.

Only natural system types were used, with the primary rule for a natural system in Marxan being that it had to have at least 10% of its distribution within an ecoregion on Forest Service lands, which limited the types to 93 systems (from 138 system types region wide). In addition:

- Small patch types had to have at least 100 ha in the ecoregion; if there were at least 1000 ha in ecoregion, the 10% rule was overridden.
- Large Patch and Matrix types had to have at least 1,000 ha in the ecoregion.
- Large/Small Patch and Linear types had to have at least 500 ha in the ecoregion.

Benchmarks

Benchmarks, goals set in Marxan as the percentage of element occurrences or mapped habitat that should be included in a set of AUs containing those data, were developed for species and habitat targets based on NatureServe Global Ranks and species distribution following Conservation By Design methodology and previous Ecoregional Assessments (Groves et al. 2000, Groves, C. R. 2003, <http://www.conservationgateway.org/content/ecoregional-reports>).

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Benchmarks for Species

In the matrix below, dark gray cells indicate that species meeting the above criteria occur in this assessment. Distribution definitions are: Endemic=1 ecoregion, Limited =2-3 ecoregions, Disjunct is separated by 3 or more ecoregions, and Widespread=4 or more ecoregions.

Distribution \ G-rank	1	2	3	4	5
Target: Plant EOs					
Endemic	80	70	60	50	40
Limited	70	60	50	40	30
Disjunct	60	50	40	30	20
Widespread	50	40	30	20	10
Target: Invertebrate EOs					
Endemic	80	70	60	50	40
Limited	70	60	50	40	30
Disjunct	60	50	40	30	20
Widespread	50	40	30	20	10
Target: Vertebrate EOs					
Endemic		80	70	60	50
Limited		70	60	50	40
Disjunct		60	50	40	30
Widespread		50	40	30	20
Target: Vertebrate Habitat Models					
Endemic		80	70	60	50
Limited		70	60	50	40
Disjunct		60	50	40	30
Widespread		50	40	30	20

Benchmarks for Habitats

Benchmarks were set for ecological systems at 30%, based on past ecoregional assessments, Conservation by Design (Groves et al. 2000), and the species-area curve, which postulates that if 30% of a habitat is protected, then approximately 80% of the species that depend on that habitat will survive (Dobson 1966).

Benchmarks for the 16 mapped habitats were set at 40% due to their specific importance identified by the Forests. Although they overlapped portions of the ecological systems, Marxan can get credit towards benchmarks for identifying both habitat groups in the same place. For instance, a goal for the North Pacific Dry-Mesic Silver Fir-Western Hemlock-Douglas-fir Forest ecological system can be partially met in the same AU as a goal for Late Seral Mixed Conifer – Eastside priority habitat. However, there are species that need a variety of seral stages and plant communities, so while the late seral stage received a higher goal and priority, setting a goal in Marxan for the ecological systems also made sure there were a variety of ecological niches in the AU solution set.

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Suitability Index

To direct Marxan to areas most likely to be conserved or restored, we developed a cost suitability index. Each assessment unit was attributed with a summary of weighted land management classes. A compilation of forest ownership and management data layers was used to map ownership and management types for Forest Service owned lands (USFS 2010). The Protected Areas Database, PAD-US v1.1, (USGS 2010) was used for land not owned by the Forest Service. These datasets were merged and land management classes were grouped, weighted, and summarized by assessment unit as described below. For this analysis, the management cost was weighted equally (50-50) with the area of the assessment units to calculate the final cost layer for Marxan (Figure 2).

Forest Service Management Data

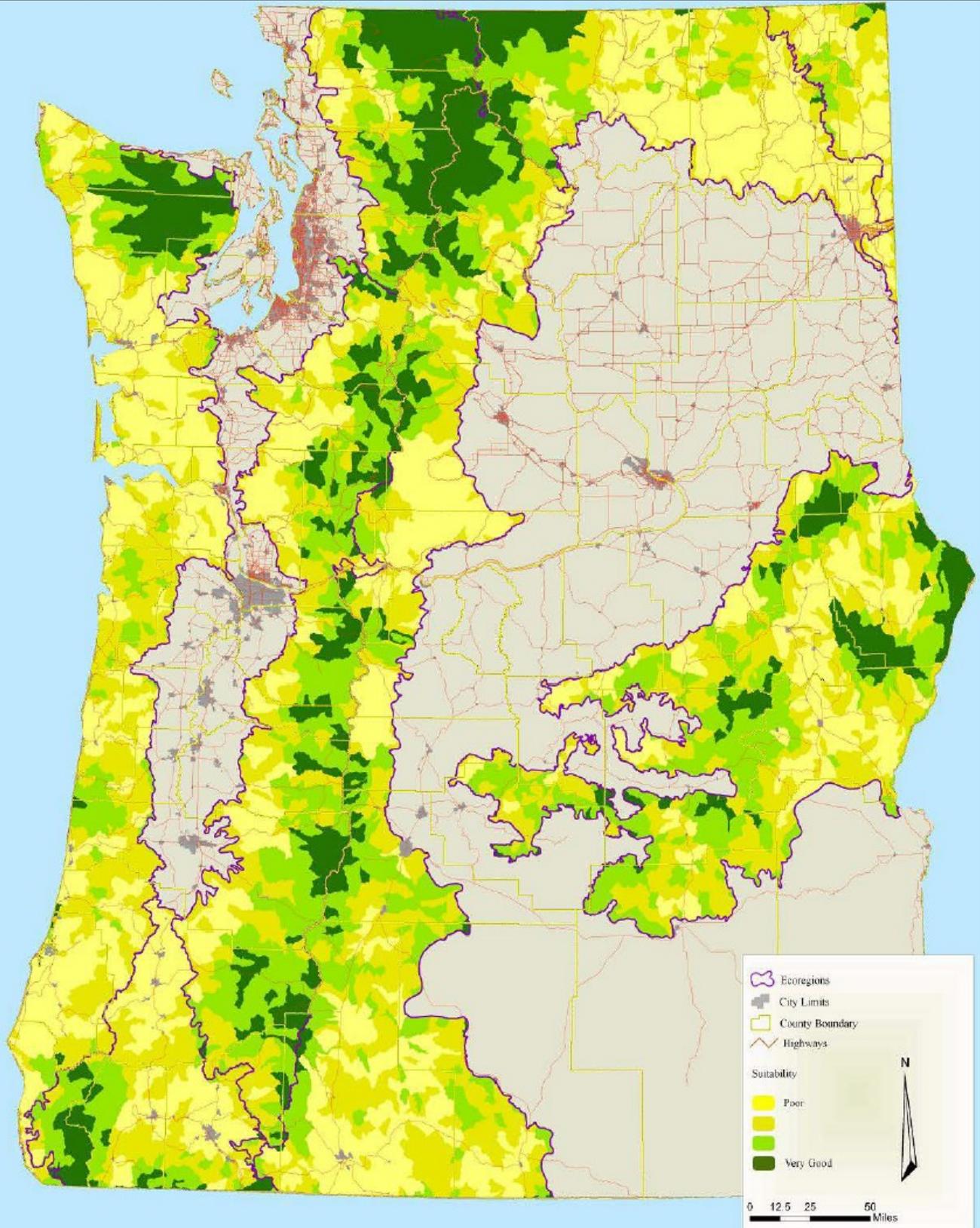
Regional datasets were obtained from the Forest Service that included current ownership of each Forest and current roadless areas on Forest Service lands. A layered dataset was obtained from ORNHIC (2010) that contained the following merged management layers: land management resource planning (LMRP) data for each Forest; Northwest Forest Plan data for the Region, current wilderness areas; and wild and scenic rivers data. Forest Service Roadless Areas data were appended to the dataset, as they were deemed important for management. The compiled dataset consisted of layered polygons representing each management allocation and a related table with the data attributes. Over 2,000 original definitions were read, interpreted, and then manually rephrased and entered as a more standardized definition of terms. This act reduced the number of classes to 152.

The Forest Service Team reviewed the 152 classes and grouped them into 7 classes that would be used in Marxan to more clearly weight and map the different management types. To create a flat layer for Forest Service management, we made the assumption that if there were multiple classes that overlapped, the most restrictive land management type present would be used.

Management Data for Non – Forest Service Owned Lands

The Protected Areas Database, PAD – US v.1.1, (USGS 2010) was used for all public or tribal lands in Oregon and Washington that are not owned by the Forest Service. We added the Klamath Marsh National Wildlife Refuge Complex into the PAD-US data as it was a known data gap with the polygons missing from the PAD layer. We assigned GAP codes to the refuge based on knowledge of management. We also split out the existing GAP code 4 into lands owned by the Bureau of Indian Affairs and other lands as we felt the management possibilities in the BIA lands equated more with private lands than did the other public lands in GAP code 4 (e.g. some state parks, city lands or other public lands). Areas administered by the Forest Service were removed from the PADUS dataset, and the more accurate information created from Forest Service data was substituted. We assumed that any blank spaces in the final shapefile were private lands. We then attributed the assessment units for Region 6 with the percent of each management class in that AU.

Figure 2. Suitability of HUC 6s for USFS Region 6 Marxan analysis based on 50% area, 50% management.



Scale 1 : 900 000
Map Produced by Michael Schindel
January 4th, 2011

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Weights of Management Classes

Marxan attempts to meet benchmarks at the lowest total cost, which can be determined by a combination of factors. For our purposes, we defined cost by management status. Areas conserved as wilderness, or other designations with a biodiversity focus, were the lowest cost. Lands where Forest Service management actions are allowed were also considered low cost. For each of the 13 management classes we assigned a weighting, which was then multiplied by the percent of each AU in that management class. Summing these weighted values for all lands within an AU yielded its final management suitability score. Assessment units with lower suitability for conservation and restoration (e.g. areas available for vegetation modification, recreation emphasis or private lands) ended up with a higher cost. For more information, see the submitted Geodatabase table, MNGMNTxAU. Shown below are the classes used from both datasets and their assigned weights, with the classes from the Forest Service layer coded with an “f” and those from the PAD data with a “G”. These costs were weighted equally (50-50) with the area of the assessment units for the final cost layer for Marxan.

Restrictiveness	Code	Class	Weight for Suitability	Ha
1	1f	Long-term Preservation by Act of Congress	1	2158,052
	1G	Permanent Protection -- ecological disturbance events allowed to proceed	1	820,235
2	2f	Preservation with simple amendment to change	2	1,643,168
	2G	Permanent Protection -- ecological disturbance events suppressed	2	1,859,797
3	3f	Retention Areas with Variability	3	1,734,281
	4aG	Long-term conservation easement (6-14 years)	3	102
4	4f	Partial Retention - Mixed Needs	4	2,028,479
5	5af	Modification of Vegetation	5	2,473,586
	3G	Permanent Protection -- subject to extractive (e.g. mining or logging) or OHV use	5	7,447,534
6	5bf	Recreation Emphasis	6	88,797
	4G	No known mandate for protection	6	486,332
	4BIA	No known mandate for protection - BIA lands	10	1,681,825
	6f5G	USFS and GAP PVT or unassigned	10	20,475,245

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Results of Spatial Prioritization

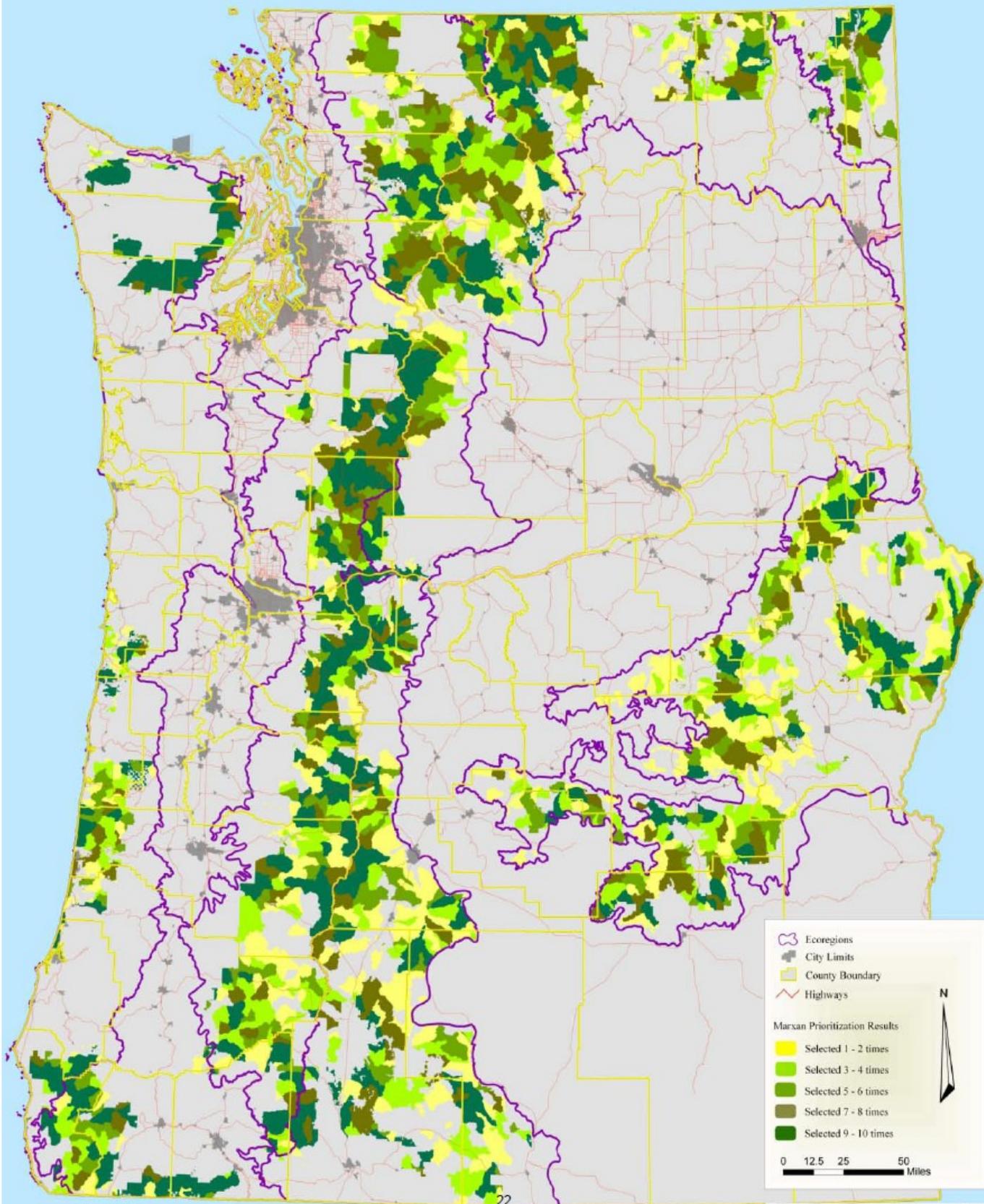
Although there were a total of 5,775 HUC 6 assessment units analyzed in the 11 ecoregions in Region 6, we are presenting the results only for the 9 ecoregions that have significant Forest Service managed areas because the Marxan species, habitats, and ecological systems chosen for the analysis were all Forest Service centric. Results in ecoregions with little forested habitat are misleading as they represent only a small fraction of the biodiversity and habitats in those ecoregions. Thus, our results are based on the 3,410 AUs in 9 of the 11 ecoregions.

We performed four separate Marxan analyses with these data. Species, habitats, and ecological systems were analyzed in separate Marxan runs, and a final run was done with all target groups combined. Comparing the top tier assessment units chosen most often in those runs showed that the Marxan analysis where all targets were run at the same time with a system of 50-50 area-management cost weighting was the most efficient at selecting AUs that contained the largest number of biodiversity targets.

Considering each ecoregion separately (as we did with Marxan), there were a total of 1,123 targets (802 species, 68 special habitats and 253 ecological systems). However, rather than selecting a single solution that might select 40% of the assessment units to meet all benchmarks in a traditional portfolio of assessment units, we propose that the Forest Service consider a summed run approach, where each assessment unit is ranked on the number or percentage of times it is chosen by Marxan in 10 runs. This allows each assessment unit to be compared to another on a relative scale, creating a more flexible prioritization process that can look at all targets at once, as well as allowing the user to identify individual assessment units that contain a chosen species or habitat. Figure 3 shows summed run results for all AUs on Forest Service land in Region 6.

When identifying the AUs that are most important for the list of forest species and habitats, a line needs to be drawn somewhere identifying a certain benchmark or number of hectares or assessment units that are desired. We found that if AUs that were chosen 90 and 100% of the time in the 10 Marxan runs were selected, it creates a solution set that identifies 487 AUs or 14.28 % of the total AUs, and 18.6% of the total area in the 9 ecoregions (see matrix below). Those 14% of AUs meet benchmarks for 39% of the 1,123 targets – demonstrating the highly efficient optimization of Marxan. If one lowers the benchmark down to 50% of goals set, 83% of the targets meet that amount. And although we do not suggest that going below 50% of benchmarks (that are 20-50% of existing species and habitat data) represents large enough amounts of biodiversity to be viable, it is worth noting that at 10% of the benchmark, this set of 487 AUs contains over 1,097 species, habitat, and systems targets, or 98% of all the biodiversity targets that were analyzed.

Figure 3. Marxan Prioritization of USFS Administered Lands in Region 6



Scale 1 : 800 000
Map Produced by Michael Schindel
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Results for AUs Chosen 90 and 100% of the Time in Marxan		
% of Benchmark	# of Marxan Targets	% of Targets Meeting Benchmark
100%	432	38.5
75	670	59.7
50	929	82.7
25	1,072	95.5
10	1,097	97.7
5	1,103	98.2
1	1,104	98.3
0	1,123	100.0

Based on these results the Conservancy feels that the Forest Service should choose landscapes for conservation and restoration from within the AUs (HUC 6 watersheds) selected in 90 to 100% of the Marxan runs. This area covers 6,370,019 acres in Oregon and Washington.

Discussion

The data and methods outlined in this report are intended to provide a robust and repeatable example of how the Forest Service can prioritize areas for restoration and conservation. See Appendix 5 for a discussion on use of the spatial and tabular data in the Geodatabase included with this report.

The rankings of the AUs across Region 6 are the result of running an irreplaceability analysis using a combination of biodiversity information, area, and management suitability (also called conservation utility). In general terms, the watersheds identified as priorities are those most critical to meeting the benchmarks assigned to the conservation targets in Marxan. Selection of a watershed may be driven by a species or habitat that is found nowhere else in the ecoregion or by a combination of different species and habitat targets. The selected watersheds are absolutely critical for the conservation of many targets, but other species and habitats will not be represented there at all. This is entirely appropriate in the context of a prioritization, but other considerations may be helpful when settling on specific areas for action.

Every step of this process was crafted from a Forest Service centric viewpoint. Both the target list and the suitability index, the primary drivers in a Marxan analysis, were based on Forest Service conservation objectives. Land management status was the overriding factor in the suitability index, and we used the best biodiversity information available. However, no peer review was performed on the automated outputs, which would have provided a source of on the ground knowledge of biodiversity and management not otherwise available.

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State Fish and Wildlife agencies and The Nature Conservancy have all worked to identify areas that, if managed appropriately, would conserve the vast majority of species and habitats across Region 6.

The goal of the Conservancy's ecoregional assessment process as described in *Designing a Geography of Hope* (Groves et al. 2000) and *Drafting a Conservation Blueprint* (Groves 2003) is to provide a vision for conservation success for ecosystems, natural communities and species representative of an ecoregion, and establish priorities for resource allocation. Each ecoregion assessment identifies conservation targets (species and habitats) that, when combined, are intended to reflect the biodiversity of the ecoregion. Goals (benchmarks in this report) are established for each target that represent the number of populations or acres and the distribution of those populations and acres across the ecoregion needed to conserve to ensure the long term viability of that target within the ecoregion. The product of each assessment is a map of peer reviewed priority areas that, if managed for conservation, would most efficiently conserve the biodiversity of the ecoregion.

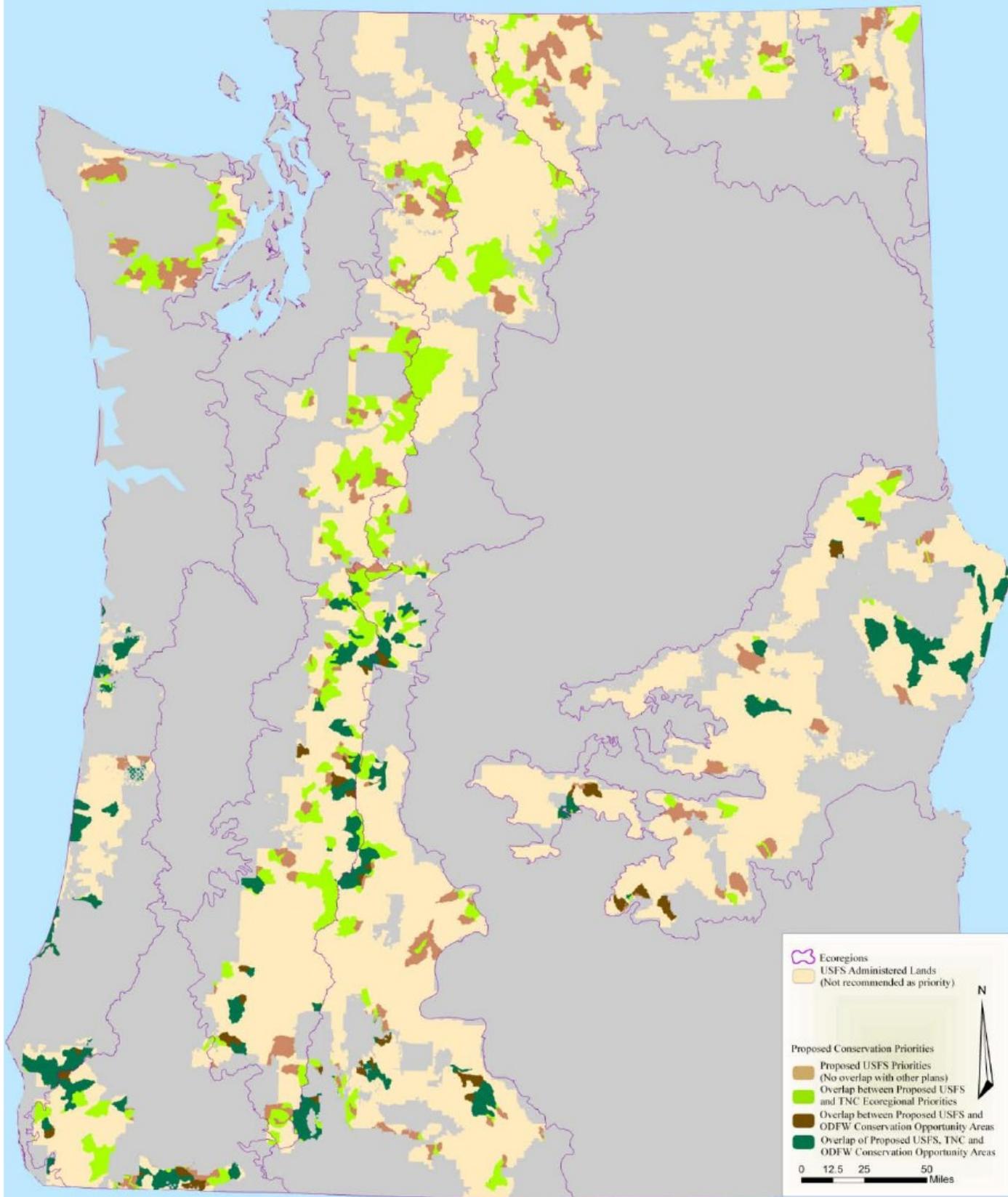
Similarly, The Oregon Conservation Strategy, using a coarse filter/fine filter approach similar to The Nature Conservancy's, identified Conservation Opportunity Areas for each ecoregion. These areas are landscapes where broad fish and wildlife conservation goals would be best met. (A spatially explicit map of conservation areas was not produced for Washington's Wildlife Conservation Strategy.)

Each of these planning efforts involved many partners, including the federal agencies, considered many factors in their suitability indices, and peer reviewed their recommendations. Public and private entities are increasingly focusing their conservation efforts on areas identified by these comprehensive planning exercises. Methods and data used in the wildlife strategies and the Conservancy's ecoregional assessments are similar to those we presented in this report, but included aquatics and a broader swath of terrestrial species and habitats, as well as extensive peer review.

When comparing the Forest Service results (AUs selected in 90 to 100% of the Marxan runs on Forest Service administered land) to these other conservation priorities, 69% of these AUs overlap with The Conservancy's priorities in the 9 forested ecoregions within Oregon and Washington. Of the AUs selected on Forest Service managed land in Oregon (3.6 million acres) 48% (1.7 million acres) overlap with ODFW's Conservation Opportunity Areas. The acres of overlap are calculated below.

Agency or Organization	Acres of Priorities on USFS Administered Lands	Acres of Overlap with Proposed USFS Terrestrial Priorities
Forest Service AUs selected in 90 to 100% of Marxan runs	6,370,019	
TNC (OR and WA)	15,199,217	4,404,546
ODFW (OR)	5,802,859	1,727,895
TNC & ODFW overlap (OR)	4,335,518	1,423,403

Figure 4. Overlap of priority AUs selected by The Nature Conservancy and the Oregon Department of Fish and Wildlife with the Forest Service AUs selected in 90 to 100% of the Marxan runs.



Map Produced by Michael Schindel
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This overlap is not surprising considering the close methodological similarity among the three planning efforts. A main difference was that this analysis for the Forest Service used only terrestrial and riparian targets important for conservation and restoration on Forest Service lands; a subset of the targets used by the other two efforts.

While all the HUCs selected in this analysis can be considered priorities for restoration and conservation, a further focusing of the list to those HUCs that overlap other ecoregion-wide conservation planning efforts might contribute more to an efficient conservation solution focused on all of the biodiversity of the ecoregion. Forest Service conservation and restoration actions that overlap priority landscapes identified by other planning efforts are more likely to attract funding and produce tangible and lasting results in landscapes with a variety of partners.

Figure 4 shows the overlap of priority AUs selected by The Nature Conservancy and the Oregon Department of Fish and Wildlife with the Forest Service AUs selected in 90 to 100% of the Marxan runs.

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Appendix 1. Master vertebrate species list with prioritization filters.

See report for description of filters and Appendix 2 for distributions of species with Priority Rank of 1 by ecoregion.

Common Name	Scientific Name	Taxonomic Group	Filter #1: Passed Taxonomy, Presence, non-marine.	Filter #2: ESA Priority	Filter #3: Socially Important	Filter #4: >25% on USFS	Filter #5: Regional Rank >Low	Filter #6: Passed Ecoregional Cutoffs Based on Regional Rank (5, 10, or 15%)	Suggested USFS Priority Rank	Fiber failed
Oregon Spotted Frog	<i>Rana pretiosa</i>	Amphibians	x	x					ESA	
Columbia Spotted Frog - Great Basin	<i>Rana luteiventris</i> pop. 3	Amphibians	x	x					ESA	
Greater Sage-grouse	<i>Centrocercus urophasianus</i>	Birds	x	x					ESA	
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>	Birds	x	x					ESA	
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	Birds	x	x					ESA	
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	Birds	x	x					ESA	
Gray Wolf	<i>Canis lupus</i>	Mammals	x	x					ESA	
Brown Bear	<i>Ursus arctos</i>	Mammals	x	x					ESA	
Fisher - West Coast Distinct Population	<i>Martes pennanti</i> pop. 1	Mammals	x	x					ESA	
Canadian Lynx	<i>Lynx canadensis</i>	Mammals	x	x					ESA	
Woodland Caribou	<i>Rangifer tarandus caribou</i>	Mammals	x	x					ESA	
Spruce Grouse	<i>Falco pennis canadensis</i>	Birds	x		x				Social Econ	
Dusky Grouse	<i>Dendragapus obscurus</i>	Birds	x		x				Social Econ	
Ruffed Grouse	<i>Bonasa umbellus</i>	Birds	x		x				Social Econ	
Wild Turkey	<i>Meleagris gallopavo</i>	Birds	x		x				Social Econ	
Mountain Quail	<i>Oreortyx pictus</i>	Birds	x		x				Social Econ	
Band-tailed Pigeon	<i>Patagioenas fasciata</i>	Birds	x		x				Social Econ	
Elk	<i>Cervus canadensis</i>	Mammals	x		x				Social Econ	
Mule Deer	<i>Odocoileus hemionus</i>	Mammals	x		x				Social Econ	
Mountain Goat	<i>Oreamnos americanus</i>	Mammals	x		x				Social Econ	
Bighorn Sheep	<i>Ovis canadensis</i>	Mammals	x		x				Social Econ	
Black-tailed Deer	<i>Odocoileus hemionus columbianus</i>	Mammals	x		x				Social Econ	
Clouded Salamander	<i>Aneides ferreus</i>	Amphibians	x			x	x	x	1	
Black Salamander	<i>Aneides flavipunctatus</i>	Amphibians	x			x	x	x	1	
California Slender Salamander	<i>Batrachoseps attenuatus</i>	Amphibians	x			x	x	x	1	
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	Amphibians	x			x	x	x	1	
Dunn's Salamander	<i>Plethodon dunni</i>	Amphibians	x			x	x	x	1	
Del Norte Salamander	<i>Plethodon elongatus</i>	Amphibians	x			x	x	x	1	

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Common Name	Scientific Name	Taxonomic Group	Filter #1: Passed Taxonomy, Presence, non-marine.	Filter #2: ESA Priority	Filter #3: Socially Important	Filter #4: > 25% on USFS	Filter #5: Regional Rank < 10	Filter #6: Passed Coregional Cutoffs Based on Regional Rank (10, or 15%)	Suggested USFS Priority Rank	Filter failed
Larch Mountain Salamander	<i>Plethodon larselli</i>	Amphibians	X			X	X	X	1	
Siskiyou Mountains Salamander	<i>Plethodon stormi</i>	Amphibians	X			X	X	X	1	
Van Dyke's Salamander	<i>Plethodon vandykei</i>	Amphibians	X			X	X	X	1	
Cope's Giant Salamander	<i>Dicamptodon copei</i>	Amphibians	X			X	X	X	1	
Olympic Torrent Salamander	<i>Rhyacotriton olympicus</i>	Amphibians	X			X	X	X	1	
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>	Amphibians	X			X	X	X	1	
Cascade Torrent Salamander	<i>Rhyacotriton cascadae</i>	Amphibians	X			X	X	X	1	
Rocky Mountain Tailed Frog (Inland)	<i>Ascaphus montanus</i>	Amphibians	X			X	X	X	1	
Foothill Yellow-legged Frog	<i>Rana boylei</i>	Amphibians	X			X	X	X	1	
Cascades Frog	<i>Rana cascadae</i>	Amphibians	X			X	X	X	1	
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	Birds	X			X	X	X	1	
Harlequin Duck	<i>Histrionicus histrionicus</i>	Birds	X			X	X	X	1	
Barrow's Goldeneye	<i>Bucephala islandica</i>	Birds	X			X	X	X	1	
Buffhead	<i>Bucephala albeola</i>	Birds	X			X	X	X	1	
Northern Goshawk	<i>Accipiter gentilis</i>	Birds	X			X	X	X	1	
Peregrine Falcon	<i>Falco peregrinus</i>	Birds	X			X	X	X	1	
Flammulated Owl	<i>Otus flammolus</i>	Birds	X			X	X	X	1	
Great Gray Owl	<i>Strix nebulosa</i>	Birds	X			X	X	X	1	
Boreal Owl	<i>Aegolius funereus</i>	Birds	X			X	X	X	1	
Black Swift	<i>Cypseloides niger</i>	Birds	X			X	X	X	1	
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	Birds	X			X	X	X	1	
Red-Naped Sapsucker	<i>Sphyrapicus nuchalis</i>	Birds	X			X	X	X	1	
White-headed Woodpecker	<i>Picoides albolarvatus</i>	Birds	X			X	X	X	1	
Black-backed Woodpecker	<i>Picoides arcticus</i>	Birds	X			X	X	X	1	
American Three-toed Woodpecker	<i>Picoides dorsalis</i>	Birds	X			X	X	X	1	
Pinon Jay	<i>Gymnorhinus cyanocephalus</i>	Birds	X			X	X	X	1	
Clark's Nutcracker	<i> Nucifraga columbiana</i>	Birds	X			X	X	X	1	
Boreal Chickadee	<i>Poecile hudsonica</i>	Birds	X			X	X	X	1	
Slender-billed whitebreasted nuthatch	<i>Sitta carolinensis aculeata</i>	Birds	X			X	X	X	1	
Ruby-crowned Kinglet	<i>Regulus calendula</i>	Birds	X			X	X	X	1	
American Pipit	<i>Anthus rubescens</i>	Birds	X			X	X	X	1	

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Common Name	Scientific Name	Taxonomic Group	Filter #1: Passed Taxonomy, Presence, non-marine.	Filter #2: ESA Priority	Filter #3: Socially Important	Filter #4: > 25% on USFS	Filter #5: Regional Rank > low	Filter #6: Passed Ecoregional Cutoffs Based on Regional Rank (5, 10, or 15%)	Suggested USFS Priority Rank	Filter failed
Red-eyed Vireo	<i>Vireo olivaceus</i>	Birds	x			x	x	x	1	
Willowia rosy-finch	<i>Leucosciole tephrocotis willowia</i>	Birds	x			x	x	x	1	
Pygmy Shrew	<i>Sorex hoyi</i>	Mammals	x			x	x	x	1	
Red-tailed Chipmunk	<i>Tamias ruficaudus</i>	Mammals	x			x	x	x	1	
Northern Bog Lemming	<i>Synaptomys borealis</i>	Mammals	x			x	x	x	1	
White-footed Vole	<i>Arborimus albipes</i>	Mammals	x			x	x	x	1	
Red Tree Vole	<i>Arborimus longicaudus</i>	Mammals	x			x	x	x	1	
American Marten	<i>Martes americana</i>	Mammals	x			x	x	x	1	
Fisher	<i>Martes pennanti</i>	Mammals	x			x	x	x	1	
California Wolverine	<i>Gulo gulo luteus</i>	Mammals	x			x	x	x	1	
Moose	<i>Alces americanus</i>	Mammals	x			x	x	x	1	
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	Reptiles	x			x	x	x	1	
Coastal Tailed Frog	<i>Ascaphus truei</i>	Amphibians	x			x	x	x	2	Did not meet eco cutoff
Western Toad	<i>Bufo boreas</i>	Amphibians	x			x	x	x	2	Did not meet eco cutoff
Columbia Spotted Frog	<i>Rana luteiventris</i>	Amphibians	x			x	x	x	2	Did not meet eco cutoff
Sharp-shinned Hawk	<i>Accipiter striatus</i>	Birds	x			x	x	x	2	Did not meet eco cutoff
Upland Sandpiper	<i>Bartramia longicauda</i>	Birds	x			x	x	x	2	Did not meet eco cutoff
Vaux's Swift	<i>Chaetura vauxi</i>	Birds	x			x	x	x	2	Did not meet eco cutoff
Lewis's Woodpecker	<i>Melanerpes lewis</i>	Birds	x			x	x	x	2	Did not meet eco cutoff
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Birds	x			x	x	x	2	Did not meet eco cutoff
Cordilleran Flycatcher	<i>Empidonax occidentalis</i>	Birds	x			x	x	x	2	Did not meet eco cutoff
Mountain Chickadee	<i>Parus gambeli</i>	Birds	x			x	x	x	2	Did not meet eco cutoff
Pygmy Nuthatch	<i>Sitta pygmaea</i>	Birds	x			x	x	x	2	Did not meet eco cutoff
Western Bluebird	<i>Sialia mexicana</i>	Birds	x			x	x	x	2	Did not meet eco cutoff
Townsend's Solitaire	<i>Myadestes townsendi</i>	Birds	x			x	x	x	2	Did not meet eco cutoff
Northern Waterthrush	<i>Seiurus noveboracensis</i>	Birds	x			x	x	x	2	Did not meet eco cutoff
Green-tailed Towhee	<i>Pipilo chlorurus</i>	Birds	x			x	x	x	2	Did not meet eco cutoff
Cassin's Finch	<i>Carpodacus cassinii</i>	Birds	x			x	x	x	2	Did not meet eco cutoff
Long-legged Myotis	<i>Myotis volans</i>	Mammals	x			x	x	x	2	Did not meet eco cutoff
California Myotis	<i>Myotis californicus</i>	Mammals	x			x	x	x	2	Did not meet eco cutoff
Silver-haired Bat	<i>Lasiurus noctivagans</i>	Mammals	x			x	x	x	2	Did not meet eco cutoff

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Common Name	Scientific Name	Taxonomic Group	Filter #1: Passed Taxonomy, Presence, non-marine.	Filter #2: ESA Priority	Filter #3: Socially Important	Filter #4: > 25% on USFS	Filter #5: Regional Rank < Low	Filter #6: Passed Ecoregional Cutoffs Based on Regional Rank (5, 10, or 15%)	Suggested USFS Priority Rank	Filter Ruled
Hoary Bat	<i>Lasiurus cinereus</i>	Mammals	x			x	x		2	Did not meet eco cutoff
Pika	<i>Ochotona princeps</i>	Mammals	x			x	x		2	Did not meet eco cutoff
Western Gray Squirrel	<i>Sciurus griseus</i>	Mammals	x			x	x		2	Did not meet eco cutoff
Ringtail	<i>Bassariscus astutus</i>	Mammals	x			x	x		2	Did not meet eco cutoff
Osprey	<i>Pandion haliaetus</i>	Birds	x			x			3	Low RR
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Birds	x			x			3	Low RR
Cooper's Hawk	<i>Accipiter cooperii</i>	Birds	x			x			3	Low RR
Barred Owl	<i>Strix varia</i>	Birds	x			x			3	Low RR
Rufous Hummingbird	<i>Selasphorus rufus</i>	Birds	x			x			3	Low RR
Downy Woodpecker	<i>Picoides pubescens</i>	Birds	x			x			3	Low RR
Hairy Woodpecker	<i>Picoides villosus</i>	Birds	x			x			3	Low RR
Flicker	<i>Colaptes auratus</i>	Birds	x			x			3	Low RR
Pileated Woodpecker	<i>Dryocopus pileatus</i>	Birds	x			x			3	Low RR
Western Wood-Pewee	<i>Contopus sordidulus</i>	Birds	x			x			3	Low RR
Willow Flycatcher	<i>Empidonax traillii</i>	Birds	x			x			3	Low RR
Hammond's Flycatcher	<i>Empidonax hammondi</i>	Birds	x			x			3	Low RR
White-breasted Nuthatch	<i>Sitta carolinensis</i>	Birds	x			x			3	Low RR
Brown Creeper	<i>Certhia americana</i>	Birds	x			x			3	Low RR
Marsh Wren	<i>Cistothorus palustris</i>	Birds	x			x			3	Low RR
Golden-crowned Kinglet	<i>Regulus satrapa</i>	Birds	x			x			3	Low RR
Nashville Warbler	<i>Vermivora ruficapilla</i>	Birds	x			x			3	Low RR
American Redstart	<i>Setophaga ruticilla</i>	Birds	x			x			3	Low RR
MacGillivray's Warbler	<i>Oporornis tolmiei</i>	Birds	x			x			3	Low RR
Wilson's Warbler	<i>Wilsonia pusilla</i>	Birds	x			x			3	Low RR
Lazuli Bunting	<i>Passerina amoena</i>	Birds	x			x			3	Low RR
Chipping Sparrow	<i>Spizella passerina</i>	Birds	x			x			3	Low RR
Purple Finch	<i>Carduelis purpureus</i>	Birds	x			x			3	Low RR
Pine Siskin	<i>Carduelis pinus</i>	Birds	x			x			3	Low RR
Long-eared Myotis	<i>Myotis evotis</i>	Mammals	x			x			3	Low RR
Northern Flying Squirrel	<i>Glaucomys sabrinus</i>	Mammals	x			x			3	Low RR
Beaver	<i>Castor canadensis</i>	Mammals	x			x			3	Low RR

TRACS: Appendix A

The Nature Conservancy prioritization process for USFS Region 6

Common Name	Scientific Name	Taxonomic Group	Filter #1: Passed Taxonomy, Presence, non-marine.	Filter #2: ESA Priority	Filter #3: Socially Important	Filter #4: >25% on USFS	Filter #5: Regional Rank <LW	Filter #6: Passed Ecological Cutoffs Based on Regional Rank (5, 10, or 15%)	Suggested USFS Priority Rank	Filter failed
Blotched Tiger Salamander	<i>Ambystoma tigrinum melanostictum</i>	Amphibians	x						4	<25% FS
Columbia Torrent Salamander	<i>Rhyacotriton kezeri</i>	Amphibians	x						4	<25% FS
Northern Red-legged Frog	<i>Rana aurora</i>	Amphibians	x						4	<25% FS
Northern Leopard Frog	<i>Rana pipiens</i>	Amphibians	x						4	<25% FS
Common Loon	<i>Gavia immer</i>	Birds	x						4	<25% FS
Horned Grebe	<i>Podiceps auritus</i>	Birds	x						4	<25% FS
Red-necked Grebe	<i>Podiceps grisegena</i>	Birds	x						4	<25% FS
Eared Grebe	<i>Podiceps nigricollis</i>	Birds	x						4	<25% FS
Western Grebe	<i>Aechmophorus occidentalis</i>	Birds	x						4	<25% FS
Clark's Grebe	<i>Aechmophorus clarkii</i>	Birds	x						4	<25% FS
California Brown Pelican	<i>Pelecanus occidentalis californicus</i>	Birds	x						4	<25% FS
American Bittern	<i>Botaurus lentiginosus</i>	Birds	x						4	<25% FS
Great Blue Heron	<i>Ardea herodias</i>	Birds	x						4	<25% FS
Great Egret	<i>Ardea alba</i>	Birds	x						4	<25% FS
Green Heron	<i>Butorides virescens</i>	Birds	x						4	<25% FS
White-faced Ibis	<i>Plegadis chihi</i>	Birds	x						4	<25% FS
Trumpeter Swan	<i>Cygnus buccinator</i>	Birds	x						4	<25% FS
Northern Pintail	<i>Anas acuta</i>	Birds	x						4	<25% FS
Blue-winged Teal	<i>Anas discors</i>	Birds	x						4	<25% FS
Canvasback	<i>Aythya valisineria</i>	Birds	x						4	<25% FS
Northern Harrier	<i>Circus cyaneus</i>	Birds	x						4	<25% FS
Swainson's Hawk	<i>Buteo swainsoni</i>	Birds	x						4	<25% FS
Red-tail Hawk	<i>Buteo jamaicensis</i>	Birds	x						4	<25% FS
Ferruginous Hawk	<i>Buteo regalis</i>	Birds	x						4	<25% FS
Golden Eagle	<i>Aquila chrysaetos</i>	Birds	x						4	<25% FS
American Kestrel	<i>Falco sparverius</i>	Birds	x						4	<25% FS
Prairie Falcon	<i>Falco mexicanus</i>	Birds	x						4	<25% FS
Sharp-tailed Grouse	<i>Tympanuchus phasianellus</i>	Birds	x						4	<25% FS
Columbian Sharp-tailed Grouse	<i>Tympanuchus phasianellus columbianus</i>	Birds	x						4	<25% FS
Yellow Rail	<i>Coturnicops noveboracensis</i>	Birds	x						4	<25% FS
Sandhill Crane	<i>Grus canadensis</i>	Birds	x						4	<25% FS

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The Nature Conservancy prioritization process for USFS Region 6

Common Name	Scientific Name	Taxonomic Group	Filter #1: Passed Taxonomy, Presence, non-marine.	Filter #2: ESA Priority	Filter #3: Socially Important	Filter #4: > 25% on USFS	Filter #5: Regional Rank > low	Filter #6: Passed Ecoregional Quotas Based on Regional Rank (5, 10, or 15%)	Suggested USFS Priority Rank	Filter Failed
Yuma Myotis	<i>Myotis yumanensis</i>	Mammals	x						4	<25% FS
Keen's Myotis	<i>Myotis keenii</i>	Mammals	x						4	<25% FS
Fringed Myotis	<i>Myotis thysanodes</i>	Mammals	x						4	<25% FS
Western Small-footed Myotis	<i>Myotis ciliolabrum</i>	Mammals	x						4	<25% FS
Spotted Bat	<i>Euderma maculatum</i>	Mammals	x						4	<25% FS
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	Mammals	x						4	<25% FS
Townsend's Western Big-eared Bat	<i>Corynorhinus townsendii townsendii</i>	Mammals	x						4	<25% FS
Pallid Bat	<i>Antrozous pallidus</i>	Mammals	x						4	<25% FS
Pygmy Rabbit	<i>Brachylagus idahoensis</i>	Mammals	x						4	<25% FS
Olympic Marmot	<i>Marmota olympus</i>	Mammals	x						4	<25% FS
Sagebrush Vole	<i>Lemmiscus curtatus</i>	Mammals	x						4	<25% FS
Pronghorn Antelope	<i>Antilocapra americana</i>	Mammals	x						4	<25% FS
Northern Painted Turtle	<i>Chrysemys picta</i>	Reptiles	x						4	<25% FS
Pacific Pond Turtle	<i>Actinemys marmorata</i>	Reptiles	x						4	<25% FS
Sagebrush Lizard	<i>Sceloporus graciosus</i>	Reptiles	x						4	<25% FS
Racer	<i>Coluber constrictor</i>	Reptiles	x						4	<25% FS
Sharp-tailed Snake	<i>Contia tenuis</i>	Reptiles	x						4	<25% FS
Nightsnake	<i>Hypsiglena torquata</i>	Reptiles	x						4	<25% FS
Common Kingsnake	<i>Lampropeltis getula</i>	Reptiles	x						4	<25% FS
Striped Whipsnake	<i>Masticophis lateralis</i>	Reptiles	x						4	<25% FS
Tiger Salamander	<i>Ambystoma tigrinum</i>	Amphibians							N/A	Taxonomy, absent, or marine.
California Tiger Salamander	<i>Ambystoma californiense</i>	Amphibians							N/A	Taxonomy, absent, or marine.
Shasta Salamander	<i>Hydromantes shastae</i>	Amphibians							N/A	Taxonomy, absent, or marine.
Coeur D'Alene Salamander	<i>Plethodon idahoensis</i>	Amphibians							N/A	Taxonomy, absent, or marine.
Crater Lake Newt	<i>Taricha granulosa mazamae</i>	Amphibians							N/A	Taxonomy, absent, or marine.
Idaho Giant Salamander	<i>Dicamptodon aterrimus</i>	Amphibians							N/A	Taxonomy, absent, or marine.
Pacific Giant Salamander	<i>Dicamptodon tenebrosus</i>	Amphibians							N/A	Taxonomy, absent, or marine.
Woodhouse's Toad	<i>Bufo woodhousii</i>	Amphibians							N/A	Taxonomy, absent, or marine.
Great Basin Spadefoot	<i>Spea intermontana</i>	Amphibians							N/A	Taxonomy, absent, or marine.
Fork-tailed Storm-petrel	<i>Oceanodroma furcata</i>	Birds							N/A	Taxonomy, absent, or marine.
Leach's Storm-petrel	<i>Oceanodroma leucorhoa</i>	Birds							N/A	Taxonomy, absent, or marine.

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The Nature Conservancy prioritization process for USFS Region 6

Common Name	Scientific Name	Taxonomic Group	Filter #1: Passed Taxonomy, Presence, non-marine.	Filter #2: ESA Priority	Filter #3: Socially Important	Filter #4: > 25% on USFS	Filter #5: Regional Rank > Low	Filter #6: Passed Ecological Courts Based on Regional Rank 6, 10, or 15%	Suggested USFS Priority Rank	Filter failed
American White Pelican	<i>Pelecanus erythrorhynchos</i>	Birds							N/A	Taxonomy, absent, or marine.
Brown Pelican	<i>Pelecanus occidentalis</i>	Birds							N/A	Taxonomy, absent, or marine.
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	Birds							N/A	Taxonomy, absent, or marine.
Brandt's Cormorant	<i>Phalacrocorax penicillatus</i>	Birds							N/A	Taxonomy, absent, or marine.
Pelagic Cormorant	<i>Phalacrocorax pelagicus</i>	Birds							N/A	Taxonomy, absent, or marine.
Western Least Bittern	<i>Ixobrychus exilis hesperis</i>	Birds							N/A	Taxonomy, absent, or marine.
Pacific Great Blue Heron	<i>Ardea herodias fannini</i>	Birds							N/A	Taxonomy, absent, or marine.
Snowy Egret	<i>Egretta thula</i>	Birds							N/A	Taxonomy, absent, or marine.
Tundra Swan	<i>Cygnus columbianus</i>	Birds							N/A	Taxonomy, absent, or marine.
Tule White-Fronted Goose	<i>Anser albifrons elgasi</i>	Birds							N/A	Taxonomy, absent, or marine.
Snow Goose	<i>Chen caerulescens</i>	Birds							N/A	Taxonomy, absent, or marine.
Ross's Goose	<i>Chen Rossii</i>	Birds							N/A	Taxonomy, absent, or marine.
Brant	<i>Branta bernicla</i>	Birds							N/A	Taxonomy, absent, or marine.
Aleutian Canada Goose	<i>Branta hutchinsii leucopareia</i>	Birds							N/A	Taxonomy, absent, or marine.
Dusky Canada Goose	<i>Branta canadensis occidentalis</i>	Birds							N/A	Taxonomy, absent, or marine.
Redhead	<i>Aythya americana</i>	Birds							N/A	Taxonomy, absent, or marine.
Ring-necked Duck	<i>Aythya collaris</i>	Birds							N/A	Taxonomy, absent, or marine.
Greater Scaup	<i>Aythya marila</i>	Birds							N/A	Taxonomy, absent, or marine.
Lesser Scaup	<i>Aythya affinis</i>	Birds							N/A	Taxonomy, absent, or marine.
Long-tailed Duck	<i>Clangula hyemalis</i>	Birds							N/A	Taxonomy, absent, or marine.
Black Scoter	<i>Melanitta nigra</i>	Birds							N/A	Taxonomy, absent, or marine.
Surf Scoter	<i>Melanitta perspicillata</i>	Birds							N/A	Taxonomy, absent, or marine.
White-winged Scoter	<i>Melanitta fusca</i>	Birds							N/A	Taxonomy, absent, or marine.
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	Birds							N/A	Taxonomy, absent, or marine.
White-tailed Ptarmigan	<i>Lagopus leucura</i>	Birds							N/A	Taxonomy, absent, or marine.
A ptarmigan	<i>Lagopus leucura saxatilis</i>	Birds							N/A	Taxonomy, absent, or marine.
Western Sage Grouse	<i>Centrocercus urophasianus phaiaios</i>	Birds							N/A	Taxonomy, absent, or marine.
Greater Sandhill Crane	<i>Grus canadensis tabida</i>	Birds							N/A	Taxonomy, absent, or marine.
Mountain Plover	<i>Charadrius montanus</i>	Birds							N/A	Taxonomy, absent, or marine.
Black Oystercatcher	<i>Haematopus bachmani</i>	Birds							N/A	Taxonomy, absent, or marine.
American Avocet	<i>Recurvirostra americana</i>	Birds							N/A	Taxonomy, absent, or marine.

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The Nature Conservancy prioritization process for USFS Region 6

Common Name	Scientific Name	Taxonomic Group	Filter #1: Passed Taxonomy, Presence, non-marine.	Filter #2: ESA Priority	Filter #3: Socially Important	Filter #4: >25% on USFS	Filter #5: Regional Rank <Low	Filter #6: Passed Ecoregional Cutoffs Based on Regional Rank (5, 10, or 15%)	Suggested USFS Priority Rank	Filter failed
Common Name	Scientific Name	Taxonomic Group	Filter #1: Passed Taxonomy, Presence, non-marine.	Filter #2: ESA Priority	Filter #3: Socially Important	Filter #4: >25% on USFS	Filter #5: Regional Rank <Low	Filter #6: Passed Ecoregional Cutoffs Based on Regional Rank (5, 10, or 15%)	Suggested USFS Priority Rank	Filter failed
Marbled Godwit	<i>Limosa fedoa</i>	Birds							N/A	Taxonomy, absent, or marine.
Red Knot	<i>Calidris canutus</i>	Birds							N/A	Taxonomy, absent, or marine.
Rock Sandpiper	<i>Calidris pilicnemis</i>	Birds							N/A	Taxonomy, absent, or marine.
Wilson's Phalarope	<i>Phalaropus tricolor</i>	Birds							N/A	Taxonomy, absent, or marine.
Franklin's Gull	<i>Larus pipixcan</i>	Birds							N/A	Taxonomy, absent, or marine.
California Gull	<i>Larus californicus</i>	Birds							N/A	Taxonomy, absent, or marine.
Arctic Tern	<i>Sterna paradisaea</i>	Birds							N/A	Taxonomy, absent, or marine.
Common Murre	<i>Uria aalge</i>	Birds							N/A	Taxonomy, absent, or marine.
Pigeon Guillemot	<i>Cephalopodroma columba</i>	Birds							N/A	Taxonomy, absent, or marine.
Ancient Murrelet	<i>Synthliboramphus antiquus</i>	Birds							N/A	Taxonomy, absent, or marine.
Cassin's Auklet	<i>Ptychoramphus aleuticus</i>	Birds							N/A	Taxonomy, absent, or marine.
Rhinoceros Auklet	<i>Carorhinca monocerata</i>	Birds							N/A	Taxonomy, absent, or marine.
Tufted Puffin	<i>Fratercula cirrhata</i>	Birds							N/A	Taxonomy, absent, or marine.
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Birds							N/A	Taxonomy, absent, or marine.
Interior Western Screech-Owl	<i>Megascops kennicottii macfarlanei</i>	Birds							N/A	Taxonomy, absent, or marine.
Vancouver Island pygmy-owl	<i>Glaucidium gnoma swarthi</i>	Birds							N/A	Taxonomy, absent, or marine.
Western Burrowing Owl	<i>Athene cucularia hypugaea</i>	Birds							N/A	Taxonomy, absent, or marine.
Spotted Owl	<i>Strix occidentalis</i>	Birds							N/A	Taxonomy, absent, or marine.
Long-eared Owl	<i>Asio otus</i>	Birds							N/A	Taxonomy, absent, or marine.
Common Nighthawk	<i>Chordeiles minor</i>	Birds							N/A	Taxonomy, absent, or marine.
Common Poorwill	<i>Phalaenoptilus nuttallii</i>	Birds							N/A	Taxonomy, absent, or marine.
White-throated Swift	<i>Aeronautes saxatalis</i>	Birds							N/A	Taxonomy, absent, or marine.
Black-chinned Hummingbird	<i>Archilochus alexandri</i>	Birds							N/A	Taxonomy, absent, or marine.
Calliope Hummingbird	<i>Stellula calliope</i>	Birds							N/A	Taxonomy, absent, or marine.
Western Williamson's Sapsucker	<i>Sphyrapicus thyroideus thyroideus</i>	Birds							N/A	Taxonomy, absent, or marine.
Little Willow Flycatcher	<i>Empidonax traillii brewsteri</i>	Birds							N/A	Taxonomy, absent, or marine.
Willow Flycatcher	<i>Empidonax traillii adastus</i>	Birds							N/A	Taxonomy, absent, or marine.
Pacific-Slope Flycatcher	<i>Empidonax difficilis</i>	Birds							N/A	Taxonomy, absent, or marine.
Streaked Horned Lark	<i>Eremophila alpestris strigata</i>	Birds							N/A	Taxonomy, absent, or marine.
Bank Swallow	<i>Riparia riparia</i>	Birds							N/A	Taxonomy, absent, or marine.
Chestnut-Backed Chickadee	<i>Parus rufescens</i>	Birds							N/A	Taxonomy, absent, or marine.

TRACS: Appendix A

The Nature Conservancy prioritization process for USFS Region 6

Common Name	Scientific Name	Taxonomic Group	Filter #1: Passed Taxonomy, Presence, non-marine.	Filter #2: ESA Priority	Filter #3: Socially Important	Filter #4: > 25% on USFS	Filter #5: Regional Rank < Low	Filter #6: Passed Ecoregional Cutoffs Based on Regional Rank (5, 10, or 15%)	Suggested USFS Priority Rank	Filter failed
American Dipper	<i>Cinclus mexicanus</i>	Birds							N/A	Taxonomy, absent, or marine.
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	Birds							N/A	Taxonomy, absent, or marine.
Veery	<i>Catharus fuscescens</i>	Birds							N/A	Taxonomy, absent, or marine.
Blue-headed Vireo	<i>Vireo solitarius</i>	Birds							N/A	Taxonomy, absent, or marine.
Black-throated Gray Warbler	<i>Dendroica nigrescens</i>	Birds							N/A	Taxonomy, absent, or marine.
Townsend's Warbler	<i>Dendroica townsendii</i>	Birds							N/A	Taxonomy, absent, or marine.
Hermit Warbler	<i>Dendroica occidentalis</i>	Birds							N/A	Taxonomy, absent, or marine.
Yellow-breasted Chat	<i>Icteria virens</i>	Birds							N/A	Taxonomy, absent, or marine.
Oregon Vesper Sparrow	<i>Pooecetes gramineus affinis</i>	Birds							N/A	Taxonomy, absent, or marine.
Black-throated Sparrow	<i>Amphispiza bilineata</i>	Birds							N/A	Taxonomy, absent, or marine.
Juniper Titmouse	<i>Baeolophus inornatus</i>	Mammals							N/A	Taxonomy, absent, or marine.
Pacific Shrew	<i>Sorex pacificus cascadenis</i>	Mammals							N/A	Taxonomy, absent, or marine.
Vancouver Island Water Shrew	<i>Sorex palustris brooksi</i>	Mammals							N/A	Taxonomy, absent, or marine.
Marsh Shrew	<i>Sorex bendirii</i>	Mammals							N/A	Taxonomy, absent, or marine.
Trowbridge's Shrew	<i>Sorex trowbridgii</i>	Mammals							N/A	Taxonomy, absent, or marine.
Merriam's Shrew	<i>Sorex merriami</i>	Mammals							N/A	Taxonomy, absent, or marine.
Baird's Shrew	<i>Sorex bairdi</i>	Mammals							N/A	Taxonomy, absent, or marine.
Townsend's Mole	<i>Scapanus townsendii</i>	Mammals							N/A	Taxonomy, absent, or marine.
Western Pipistrelle	<i>Pipistrellus hesperus</i>	Mammals							N/A	Taxonomy, absent, or marine.
Western Red Bat	<i>Lasiurus blossevillii</i>	Mammals							N/A	Taxonomy, absent, or marine.
Pale Lump-nosed Bat	<i>Corynomachus townsendii pallascens</i>	Mammals							N/A	Taxonomy, absent, or marine.
Brazilian Free-tailed Bat	<i>Tadarida brasiliensis</i>	Mammals							N/A	Taxonomy, absent, or marine.
Mountain Cotton-tail	<i>Sylvilagus nuttallii</i>	Mammals							N/A	Taxonomy, absent, or marine.
White-tailed Jackrabbit	<i>Lepus townsendii</i>	Mammals							N/A	Taxonomy, absent, or marine.
Black-tailed Jackrabbit	<i>Lepus californicus</i>	Mammals							N/A	Taxonomy, absent, or marine.
Cascades Mountain Beaver	<i>Aplodontia rufa rainieri</i>	Mammals							N/A	Taxonomy, absent, or marine.
Coastal Mountain Beaver	<i>Aplodontia rufa rufa</i>	Mammals							N/A	Taxonomy, absent, or marine.
Yellow-pine Chipmunk	<i>Neotamias amoenus celeris</i>	Mammals							N/A	Taxonomy, absent, or marine.
Vancouver Island Marmot	<i>Marmota vancouverensis</i>	Mammals							N/A	Taxonomy, absent, or marine.
White-tailed Antelope Squirrel	<i>Ammospermophilus leucurus</i>	Mammals							N/A	Taxonomy, absent, or marine.
Townsend's Ground Squirrel	<i>Spermophilus townsendii</i>	Mammals							N/A	Taxonomy, absent, or marine.

TRACS: Appendix A

The Nature Conservancy prioritization process for USFS Region 6

Common Name	Scientific Name	Taxonomic Group	Filter #1: Passed Taxonomy, Presence, non-marine.	Filter #2: ESA Priority	Filter #3: Socially Important	Filter #4: > 25% on USFS	Filter #5: Regional Rank > Low	Filter #6: Passed Ecoregional Cutoffs Based on Regional Rank (5, 10, or 15%)	Suggested USFS Priority Rank	Filter Failed
Washington Ground Squirrel	<i>Spermophilus washingtoni</i>	Mammals							N/A	Taxonomy, absent, or marine.
Northern Idaho Ground Squirrel	<i>Spermophilus brunneus brunneus</i>	Mammals							N/A	Taxonomy, absent, or marine.
Southern Idaho Ground Squirrel	<i>Spermophilus brunneus endemicus</i>	Mammals							N/A	Taxonomy, absent, or marine.
Balding's ground squirrel	<i>Spermophilus beldingii</i>	Mammals							N/A	Taxonomy, absent, or marine.
Piute Ground Squirrel	<i>Spermophilus mollis</i>	Mammals							N/A	Taxonomy, absent, or marine.
Townsend's Pocket Gopher	<i>Thomomys townsendii</i>	Mammals							N/A	Taxonomy, absent, or marine.
Northern Pocket Gopher	<i>Thomomys talpoides douglasii</i>	Mammals							N/A	Taxonomy, absent, or marine.
Creston Northern Pocket Gopher	<i>Thomomys talpoides segregatus</i>	Mammals							N/A	Taxonomy, absent, or marine.
Western Pocket Gopher	<i>Thomomys mazama</i>	Mammals							N/A	Taxonomy, absent, or marine.
Shelton Pocket Gopher	<i>Thomomys mazama couchi</i>	Mammals							N/A	Taxonomy, absent, or marine.
Olympic Pocket Gopher	<i>Thomomys mazama melanotops</i>	Mammals							N/A	Taxonomy, absent, or marine.
Yelm Pocket Gopher	<i>Thomomys mazama yelmensis</i>	Mammals							N/A	Taxonomy, absent, or marine.
Camas pocket gopher	<i>Thomomys bulbivorus</i>	Mammals							N/A	Taxonomy, absent, or marine.
Great Basin Pocket Mouse	<i>Perognathus parvus</i>	Mammals							N/A	Taxonomy, absent, or marine.
Dark Kangaroo Mouse	<i>Microdipodops megalcephalus</i>	Mammals							N/A	Taxonomy, absent, or marine.
Western Harvest Mouse	<i>Reithrodontomys megalotis</i>	Mammals							N/A	Taxonomy, absent, or marine.
Northern Grasshopper Mouse	<i>Onychomys leucogaster</i>	Mammals							N/A	Taxonomy, absent, or marine.
Kincaid Meadow Vole	<i>Microtus pennsylvanicus kincaidi</i>	Mammals							N/A	Taxonomy, absent, or marine.
Shaw Island Vole	<i>Microtus townsendii pugeti</i>	Mammals							N/A	Taxonomy, absent, or marine.
Gray-tailed Vole	<i>Microtus canicaudus</i>	Mammals							N/A	Taxonomy, absent, or marine.
Killer Whale	<i>Orcinus orca</i>	Mammals							N/A	Taxonomy, absent, or marine.
Pacific Harbor Porpoise	<i>Phocoena phocoena</i>	Mammals							N/A	Taxonomy, absent, or marine.
Red Fox	<i>Vulpes vulpes</i>	Mammals							N/A	Taxonomy, absent, or marine.
Sierra Nevada Red Fox	<i>Vulpes vulpes necator</i>	Mammals							N/A	Taxonomy, absent, or marine.
Kit Fox	<i>Vulpes macrotis</i>	Mammals							N/A	Taxonomy, absent, or marine.
Steller Sealion	<i>Eumetopias jubatus</i>	Mammals							N/A	Taxonomy, absent, or marine.
Vancouver Island Ermine	<i>Mustela erminea anquinae</i>	Mammals							N/A	Taxonomy, absent, or marine.
Wolverine	<i>Gulo gulo</i>	Mammals							N/A	Taxonomy, absent, or marine.
North American Wolverine	<i>Gulo gulo luscus</i>	Mammals							N/A	Taxonomy, absent, or marine.
Vancouver Island Wolverine	<i>Gulo gulo vancouverensis</i>	Mammals							N/A	Taxonomy, absent, or marine.
American Badger	<i>Taxidea taxus</i>	Mammals							N/A	Taxonomy, absent, or marine.

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The Nature Conservancy prioritization process for USFS Region 6

Common Name	Scientific Name	Taxonomic Group	Filter #1: Passed Taxonomy, Presence, non-marine.	Filter #2: ESA Priority	Filter #3: Socially Important	Filter #4: >25% on USFS	Filter #5: Regional Rank <Low	Filter #6: Passed Ecoregional Cutoffs Based on Regional Rank (5, 10, or 15%)	Suggested USFS Priority Rank	Filter failed
Sea Otter	<i>Enhydra lutris</i>	Mammals							N/A	Taxonomy, absent, or marine.
Harbor seal (pupping site)	<i>Phoca vitulina</i>	Mammals							N/A	Taxonomy, absent, or marine.
Columbian White-tailed Deer	<i>Odocoileus virginianus leucurus</i>	Mammals							N/A	Taxonomy, absent, or marine.
Sierra Nevada Bighorn Sheep	<i>Ovis canadensis sierrae</i>	Mammals							N/A	Taxonomy, absent, or marine.
Western Painted Turtle	<i>Chrysemys picta bellii</i>	Reptiles							N/A	Taxonomy, absent, or marine.
Northern Pacific Pond Turtle	<i>Actinemys marmorata marmorata</i>	Reptiles							N/A	Taxonomy, absent, or marine.
Great Basin Collared Lizard	<i>Crotaphytus bicinctores</i>	Reptiles							N/A	Taxonomy, absent, or marine.
Longnose Leopard Lizard	<i>Gambelia wislizenii</i>	Reptiles							N/A	Taxonomy, absent, or marine.
Pygmy Horned Lizard	<i>Phrynosoma douglasii</i>	Reptiles							N/A	Taxonomy, absent, or marine.
Desert Horned Lizard	<i>Phrynosoma platyrhinos</i>	Reptiles							N/A	Taxonomy, absent, or marine.
Northern Sagebrush Lizard	<i>Sceloporus graciosus graciosus</i>	Reptiles							N/A	Taxonomy, absent, or marine.
Western Fence Lizard	<i>Sceloporus occidentalis</i>	Reptiles							N/A	Taxonomy, absent, or marine.
Western Skink	<i>Eumeces skiltonianus</i>	Reptiles							N/A	Taxonomy, absent, or marine.
Pacific Ringneck Snake	<i>Diadophis punctatus amabilis</i>	Reptiles							N/A	Taxonomy, absent, or marine.
Pacific Gophersnake	<i>Pituophis catenifer catenifer</i>	Reptiles							N/A	Taxonomy, absent, or marine.
Great Basin Gophersnake	<i>Pituophis catenifer deserticola</i>	Reptiles							N/A	Taxonomy, absent, or marine.
Long-nosed Snake	<i>Rhinocheilus lecontei</i>	Reptiles							N/A	Taxonomy, absent, or marine.
Groundsnake	<i>Somora semiauriculata</i>	Reptiles							N/A	Taxonomy, absent, or marine.
Prairie Rattlesnake	<i>Crotalus viridis</i>	Reptiles							N/A	Taxonomy, absent, or marine.

TRACS: Appendix A

The Nature Conservancy prioritization process for USFS Region 6

Appendix 2. Vertebrate species ranked as highest priority.																				
Highlighted numbers passed an ecoregional cutoff of Regional Ranks of VH, H, or M and corresponding minimums of 5, 10, or 15% of distribution on USFS lands in an ecoregion.																				
ESA = Listed or Candidate species under the Endangered Species Act.																				
SE = Species of Social and Economic importance.																				
p = Species is present but percent distribution not calculated																				
Common Name	Scientific Name	Taxonomic Group	Regional Rank or ESA or SE	% Distribution on USFS in PNW	Valley	% Distribution on USFS in North Cascades	Cascades	% Distribution on USFS in Klamath	% Distribution on USFS in Col	Rockies	% Distribution on USFS in MI	Rocks Blue_Mtns	% Distribution on USFS in Col	N Coast	% Distribution on USFS in	Okanagan	% Distribution on USFS in West	Cascades	Total Percent on FS RB	
Columbia Spotted Frog - Great Basin	<i>Rana luteiventris</i> pop. 3	Amphibian	ESA																	
Oregon Spotted Frog	<i>Rana pretiosa</i>	Amphibian	ESA																	
Black Salamander	<i>Aneides flavipunctatus</i>	Amphibians	M	0.0	0.0	0.0	0.0	36.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.3
California Slender Salamander	<i>Batrachoseps attenuatus</i>	Amphibians	H	7.6	0.0	0.0	0.0	45.9	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	56.9
Cascade Torrent Salamander	<i>Rhyacotriton cascadae</i>	Amphibians	H	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.6	0.0	0.0	49.4
Cascades Frog	<i>Rana cascadae</i>	Amphibians	VH	2.3	0.0	10.3	22.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	0.0	0.0	65.2
Clouded Salamander	<i>Aneides ferreus</i>	Amphibians	H	5.1	0.0	0.0	2.9	6.5	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	23.3	0.0	0.0	38.0
Cope's Giant Salamander	<i>Dicamptodon copel</i>	Amphibians	H	7.9	0.3	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.9	0.0	0.0	33.5
Del Norte Salamander	<i>Plethodon elongatus</i>	Amphibians	M	6.6	0.0	0.0	40.7	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	48.5
Dunn's Salamander	<i>Plethodon dunni</i>	Amphibians	M	5.9	0.0	0.0	1.0	2.7	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	20.1	0.0	0.0	29.9
Foothill Yellow-legged Frog	<i>Rana boylei</i>	Amphibians	H	3.0	0.0	0.0	0.0	18.3	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	13.8	0.0	0.0	35.6
Larch Mountain Salamander	<i>Plethodon larselli</i>	Amphibians	VH	0.0	0.0	0.0	11.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.3	0.0	0.0	63.8
Olympic Torrent Salamander	<i>Rhyacotriton olympicus</i>	Amphibians	H	30.7	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.8
Oregon Slender Salamander	<i>Batrachoseps wrightsonum</i>	Amphibians	VH	0.0	0.0	0.0	13.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.7	0.0	0.0	70.4
Rocky Mountain Tailed Frog (Inland Tail)	<i>Ascaphus montanus</i>	Amphibians	H	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	76.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	76.9
Siskiyou Mountains Salamander	<i>Plethodon stormi</i>	Amphibians	H	0.0	0.0	0.0	0.0	29.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.1
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>	Amphibians	H	13.8	0.0	0.0	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	7.2	0.0	0.0	25.4
Van Dyke's Salamander	<i>Plethodon vandykeli</i>	Amphibians	H	10.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.0	0.0	0.0	36.9
American Pipit	<i>Amphisp. rubescens</i>	Birds	H	0.6	0.0	21.1	23.1	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	17.6	5.8	0.0	0.0	68.4
American Three-toed Woodpecker	<i>Picoides dorsalis</i>	Birds	H	0.0	0.0	9.4	20.8	0.0	0.1	2.8	20.9	0.0	11.5	7.8	0.0	11.5	7.8	0.0	0.0	73.3
Band-tailed Pigeon	<i>Cathartes aura</i>	Birds	SE	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
Barrow's Goldeneye	<i>Bucephala islandica</i>	Birds	H	0.0	0.0	5.5	21.5	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	13.4	13.3	0.0	0.0	57.9
Black Swift	<i>Cypseloides niger</i>	Birds	H	0.0	0.0	25.8	19.6	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	12.2	6.0	0.0	0.0	63.9
Black-backed Woodpecker	<i>Picoides arcticus</i>	Birds	H	0.3	0.0	1.4	19.3	2.6	0.3	2.4	18.1	0.0	8.0	5.9	0.0	8.0	5.9	0.0	0.0	58.4
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	Birds	H	0.0	0.0	0.0	24.0	0.1	0.5	0.1	0.5	0.0	26.9	0.0	0.0	4.0	4.0	0.0	0.0	55.5
Boreal Chickadee	<i>Poecetes hudsonica</i>	Birds	H	0.0	0.0	3.8	0.0	0.0	0.0	6.1	0.0	0.0	77.0	0.0	0.0	77.0	0.0	0.0	0.0	86.9

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The Nature Conservancy prioritization process for USFS Region 6

Common Name	Scientific Name	Taxonomic Group	Regional Rank or ESA or SE	% Distribution on USFS in PNW Coast	% Distribution on USFS in Will Valley	% Distribution on USFS in North Cascades	% Distribution on USFS in Cascades	% Distribution on USFS in Klamath	% Distribution on USFS in Col Plateau	% Distribution on USFS in Can Rockies	% Distribution on USFS in Mid Rockies Blue_Mtns	% Distribution on USFS in Cal Coast	% Distribution on USFS in Oregon	% Distribution on USFS in West Cascades	Total Percent on FS RB
Boreal Owl	<i>Aegolius funereus</i>	Birds	H	0.0	0.0	0.0	32.2	0.0	0.2	1.8	10.5	0.0	27.1	1.8	73.7
Bufflehead	<i>Bucephala albeola</i>	Birds	H	0.0	0.0	0.0	36.4	0.0	0.0	0.0	0.1	0.0	0.0	48.9	85.4
Clark's Nutcracker	<i>Nucifraga columbiana</i>	Birds	M	0.2	0.0	1.5	18.3	0.0	0.6	0.5	25.5	0.0	8.8	3.1	58.5
Dusky Grouse	<i>Dendragapus obscurus</i>	Birds	SE				p		p	p			p		
Flammulated Owl	<i>Otus flammeolus</i>	Birds	H	0.4	0.0	0.0	15.7	3.5	0.4	0.1	21.7	0.1	5.0	5.8	52.8
Great Gray Owl	<i>Syrinx nebulosa</i>	Birds	H	0.0	0.0	0.0	23.1	0.5	0.2	0.0	26.2	0.0	1.9	15.8	67.8
Greater Sage-grouse	<i>Centrocercus urophasianus</i>	Birds	ESA				p								
Harlequin Duck	<i>Histrionicus histrionicus</i>	Birds	H	4.5	0.1	7.6	15.9	0.0	0.0	0.6	0.0	0.0	4.1	26.6	59.3
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	Birds	ESA	p										p	
Mountain Quail	<i>Oreortyx pictus</i>	Birds	SE	se									se		
Northern Goshawk	<i>Accipiter gentilis</i>	Birds	H	1.8	0.0	3.2	17.3	2.1	0.4	1.8	15.3	0.0	5.3	10.2	57.4
Northern Spotted Owl	<i>Syrinx occidentalis caurina</i>	Birds	ESA	p									p		
Peregrine Falcon	<i>Falco peregrinus</i>	Birds	H	1.9	0.0	0.0	6.8	5.4	0.0	0.0	2.7	0.1	0.0	36.7	53.5
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	Birds	M	0.0	0.0	0.0	34.8	0.0	1.3	0.0	0.5	0.0	0.0	0.0	36.5
Red-eyed Vireo	<i>Vireo olivaceus</i>	Birds	H	0.0	0.0	0.4	0.0	0.0	0.2	0.0	51.6	0.0	0.0	0.1	52.4
Red-Naped Sapsucker	<i>Sphyrapicus nuchalis</i>	Birds	M	0.0	0.0	1.8	14.0	0.0	0.4	2.8	23.3	0.0	9.1	0.7	52.2
Ruby-crowned Kinglet	<i>Regulus calendula</i>	Birds	M	0.1	0.0	1.5	20.7	0.0	0.5	3.3	29.2	0.0	7.9	3.2	66.3
Ruffed Grouse	<i>Bonasa umbellus</i>	Birds	SE	p										p	
Slender-billed whitebreasted nuthatch	<i>Sitta carolinensis aculeata</i>	Birds	M	5.0	0.0	0.0	0.0	6.2	0.0	0.0	0.0	0.0	0.0	21.0	32.2
Spruce Grouse	<i>Falco pennis canadensis</i>	Birds	SE												
Willow rose-finch	<i>Leucosticte leucosticte willowia</i>	Birds	VH								100.0				100.0
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>	Birds	ESA	p											
White-headed Woodpecker	<i>Picoides albolarvatus</i>	Birds	H	0.0	0.0	0.0	15.1	2.9	0.6	0.0	38.8	0.0	1.8	0.0	59.3
Wild Turkey	<i>Meleagris gallopavo</i>	Birds	SE	p										p	
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	Birds	H	0.0	0.0	0.0	25.0	0.0	0.6	0.0	32.7	0.0	5.5	1.7	65.4
American Marten	<i>Martes americana</i>	Mammals	H	4.2	0.1	4.9	15.5	1.8	0.1	1.9	8.5	0.1	5.1	11.4	53.5
Bighorn Sheep	<i>Ovis canadensis</i>	Mammals	SE												
Black-tailed Deer	<i>Odocoileus hemionus columbianus</i>	Mammals	SE	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	
Brown Bear	<i>Ursus arctos</i>	Mammals	ESA												
California Wolverine	<i>Gulo gulo luteus</i>	Mammals	VH	0.0	0.0	7.7	18.3	0.9	0.0	3.6	8.8	0.0	12.5	8.4	60.2
Canadian Lynx	<i>Lynx canadensis</i>	Mammals	ESA												
Elk	<i>Cervus canadensis</i>	Mammals	SE	p											

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The Nature Conservancy prioritization process for USFS Region 6

Common Name	Scientific Name	Taxonomic Group	Regional Rank or ESA or SE	% Distribution on USFS in PNW Coast	Valley	% Distribution on USFS in North Cascades	Cascades	% Distribution on USFS in Kamath	Plateau	% Distribution on USFS in Can	Rocks	% Distribution on USFS in Mid	Rocks Blue_Mnts	% Distribution on USFS in Cal	N Coast	% Distribution on USFS in Okegagan	Cascades	Total Percent on FS R6
Fisher	<i>Martes pennanti</i>	Mammals	H	2.8	0.1	2.7	9.5	3.6	0.0	2.1	11.9	0.1	13.1	0.1	5.1	13.1	50.9	
Fisher - West Coast Distinct Population	<i>Martes pennanti pop.1</i>	Mammals	ESA	p		p	p	p							p			
Gray Wolf	<i>Canis lupus</i>	Mammals	ESA															
Moose	<i>Alces americanus</i>	Mammals	M	0.0	0.0	0.0	0.0	0.0	0.0	14.2	0.0	0.0	31.9	0.0	0.0	0.0	46.2	
Mountain Goat	<i>Oreamnos americanus</i>	Mammals	SE	p		p	p	p							p			
Mule Deer	<i>Odocoileus hemionus</i>	Mammals	SE	p		p	p	p							p			
Northern Bog Lemming	<i>Synaptomyis borealis</i>	Mammals	H	0.0	0.0	19.6	3.4	0.0	0.0	16.4	0.0	0.0	26.5	0.0	0.0	0.0	65.9	
Pygmy Shrew	<i>Sorex hoyi</i>	Mammals	M	0.0	0.0	0.0	0.0	0.0	0.0	29.4	0.0	0.0	1.9	0.0	0.0	0.0	31.3	
Red Tree Vole	<i>Arborimus longicaudus</i>	Mammals	H	6.8	0.0	0.0	0.4	6.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	17.6	30.9	
Red-tailed Chipmunk	<i>Tamias ruficaudus</i>	Mammals	M	0.0	0.0	0.0	0.0	0.0	0.0	35.6	0.0	0.0	0.0	0.0	0.0	1.6	0.0	
White-footed Vole	<i>Arborimus albipes</i>	Mammals	H	11.0	0.0	0.0	0.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.9	33.0	
Woodland Caribou	<i>Rangifer tarandus caribou</i>	Mammals	ESA															
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	Reptiles	M	2.0	0.0	0.0	0.1	21.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	42.6	

TRACS: Appendix A

The Nature Conservancy prioritization process for USFS Region 6

Appendix 3. Priority and ESA listed and candidate plant species, and documented element occurrences on USFS lands by ecoregion.

Common Name	Scientific Name	USFS Priority	Rounded Rank	EOS documented on USFS in PNW Coast	EOS documented on USFS in Will. Valley - Puget Trough	EOS documented on USFS in North Cascades	EOS documented on USFS in East Cascades	EOS documented on USFS in Klamath Mountains	EOS documented on USFS in Col. Plateau	EOS documented on USFS in Can. Rockies	EOS documented on USFS in Blue Mountains	EOS documented on USFS in Okanogan	EOS documented on USFS in West Cascades
Liverwort	<i>Chiloscyphus geminiparus</i>	Priority	G1				Y						Y
Moss	<i>Andreaea schofieldiana</i>	Priority	G2					Y					Y
Moss	<i>Brachydontium olympicum</i>	Priority	G2										
Moss	<i>Schistidium cinctodontum</i>	Priority	G2								Y		
Fungus	<i>Hygrophorus caeruleus</i>	Priority	G2				Y						
Fungus	<i>Oideia smithii</i>	Priority	G2	Y									
Fungus	<i>Alpova alexsmithii</i>	Priority	G2				Y						Y
Fungus	<i>Chroogomphus loculatus</i>	Priority	G1										Y
Fungus	<i>Boletus pulcherrimus</i>	Priority	G2				Y						Y
Fungus	<i>Gastroboletus vividus</i>	Priority	G2					Y					Y
Fungus	<i>Arcangelletia camphorata</i>	Priority	G2	Y				Y					
Fungus	<i>Martellia idahoensis</i>	Priority	G2	Y									Y
Fungus	<i>Phaeocollybia gregaria</i>	Priority	G1	Y									
Fungus	<i>Phaeocollybia oregonensis</i>	Priority	G2	Y									Y
Fungus	<i>Rhizopogon ellipsosporus</i>	Priority	G2										Y
Lichen	<i>Heterodermia sitchensis</i>	Priority	G2	Y									
Greenman's Lomatium	<i>Lomatium greenmanii</i>	Priority	G1										Y
Aqate Desert Lomatium	<i>Lomatium cookii</i>	ESA listed	G1										
Red-fruited Lomatium	<i>Lomatium erythrocarpum</i>	Priority	G1										
Ochoco Lomatium	<i>Lomatium ochocense</i>	Priority	G1						Y				
Howell's Tauschia	<i>Tauschia howellii</i>	Priority	G1					Y					
Northern Wormwood	<i>Artemisia campestris var. wormskioidii</i>	ESA listed	T1						Y				
Thompson's Pincushion	<i>Chaenactis thompsonii</i>	Priority	G2			Y							Y
Howell's Fleabane	<i>Erigeron howellii</i>	Priority	G2			Y							Y

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The Nature Conservancy prioritization process for USFS Region 6

Common Name	Scientific Name	USFS Priority	Rounded Rank	EOS documented on USFS in PNW Coast	EOS documented on USFS in Will. Valley - Puget Trough	EOS documented on USFS in North Cascades	EOS documented on USFS in East Cascades	EOS documented on USFS in Klamath Mountains	EOS documented on USFS in Col. Plateau	EOS documented on USFS in Can. Rockies	EOS documented on USFS in Blue Mountains	EOS documented on USFS in Oregon	EOS documented on USFS in West Cascades
Shoody Stickseed	<i>Hackelia venusta</i>	ESA listed	G1				Y						
Rough Popcorn-flower	<i>Plagiobothrys hirtus</i>	ESA listed	G1								Y		
Hells Canyon Rockcress	<i>Arabis hastatula</i>	Priority	G2										
Red Mountain Rockcress	<i>Arabis macdonaldiana</i>	ESA listed	G2					Y					
Saddle Mountain Bittercress	<i>Cardamine pattersonii</i>	Priority	G2	Y									
Howell's Jewelflower	<i>Streptanthus howellii</i>	Priority	G2					Y					
Water Howellia	<i>Howellia aquatilis</i>	ESA listed	G3										
Marsh Sandwort	<i>Arenaria paluicicola</i>	ESA listed	G1										
Seely's Silene	<i>Silene seelyi</i>	Priority	G2				Y						
Spalding's Campion	<i>Silene spaldingii</i>	ESA listed	G2										
North Umpqua kalmiopsis	<i>Kalmiopsis fragrans</i>	Priority	G1					Y					Y
Mt. Ashland Lupine	<i>Lupinus aridus</i> ssp. <i>ashlandensis</i>	Priority	T1					Y					
Kincaid's Lupine	<i>Lupinus oregonus</i> var. <i>kincaidii</i>	ESA listed	T2					Y					
Western Necklace	<i>Sophora leachiana</i>	Priority	G2					Y					
Douglas Clover	<i>Trifolium douglasii</i>	Priority	G2								Y		
Elegant Gentian	<i>Gentiana setigera</i>	Priority	G2					Y					
Bristly Gentian	<i>Gentiana plurisetosa</i>	Priority	G2					Y					
Leo's Phacelia	<i>Phacelia leonis</i>	Priority	G2					Y					
Spreading Checke-rmallow	<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Priority	T1	Y				Y					
Nelson's Sidalcea	<i>Sidalcea nelsoniana</i>	ESA listed	G2										
Oregon Checker-mallow	<i>Sidalcea oregana</i> var. <i>calva</i>	ESA listed	T1				Y						
Macfarlane's Four-o'clock	<i>Mirabilis macfarlanei</i>	ESA listed	G2								Y		
Oregon Willowherb	<i>Epilobium oregonum</i>	Priority	G2					Y					
Green Wild Buckwheat	<i>Eriogonum umbellatum</i> var. <i>glaberrimum</i>	Priority	T2				Y						
Wenatchee Larkspur	<i>Delphinium viridescens</i>	Priority	G2				Y						
Ross' Avens	<i>Geum rossii</i> var. <i>depressum</i>	Priority	T1				Y						
Henderson's Horkelia	<i>Horkelia hendersonii</i>	Priority	G1					Y					

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Common Name	Scientific Name	USFS Priority	Rounded Rank	EOS documented on USFS in PNW Coast	EOS documented on USFS in Will. Valley - Puget Trough	EOS documented on USFS in North Cascades	EOS documented on USFS in East Cascades	EOS documented on USFS in Klamath Mountains	EOS documented on USFS in Col. Plateau	EOS documented on USFS in Can. Rockies	EOS documented on USFS in Blue Mountains	EOS documented on USFS in Oregon	EOS documented on USFS in West Cascades
Barton's Blackberry	<i>Rubus bartonianus</i>	Priority	G2								Y		
Warner Mountain Bedstraw	<i>Galium serpeniticum</i> ssp. <i>warnerense</i>	Priority	T2				Y						
Oregon Sullivantia	<i>Sullivantia oregana</i>	Priority	G2		Y		Y						Y
Fraternal Indian-paintbrush	<i>Castilleja fraterna</i>	Priority	G2								Y		
Purple Alpine Paintbrush	<i>Castilleja rubida</i>	Priority	G2								Y		
Membrane-leaf Monkeyflower	<i>Mimulus lymanophyllus</i>	Priority	G1								Y		
Cut-leaf Synthyris	<i>Synthyris pinnatifida</i> var. <i>lanuginosa</i>	Priority	T2	Y									
Western Bog Violet	<i>Viola lanceolata</i> ssp. <i>occidentalis</i>	Priority	T2					Y					
Idaho Sedge	<i>Carex idaho</i>	Priority	G2					Y					
A sedge	<i>Carex klamathensis</i>	Priority	G2										
Pale Blue-eyed-grass	<i>Sisyrinchium sarmentosum</i>	Priority	G1				Y						Y
Blue Mountain Onion	<i>Allium dictyon</i>	Priority	G2					Y			Y		
Green-band Mariposa Lily	<i>Calochortus macrocarpus</i> var. <i>maculosus</i>	Priority	T2								Y		
Umpqua Mariposa Lily	<i>Calochortus umpquaensis</i>	Priority	G1					Y					Y
Quinnault Fawnlily	<i>Erythronium quinnaultense</i>	Priority	G2	Y									
Genther's Fritillaria	<i>Fritillaria gentheri</i>	ESA listed	G1										Y
Large-flower Rushlily	<i>Hastingsia bracteosa</i> var. <i>atropurpurea</i>	Priority	T2					Y					
Large-flower Rushlily	<i>Hastingsia bracteosa</i> var. <i>bracteosa</i>	Priority	T2					Y					
Western Lily	<i>Lilium occidentale</i>	ESA listed	G1										
Ute Ladies'-tresses	<i>Spiranthes diluvialis</i>	ESA listed	G2										
Howell's Bentgrass	<i>Agrostis howelli</i>	Priority	G2				Y						Y
Wallowa Ricegrass	<i>Achnatherum wallowaensis</i>	Priority	G2								Y		
Peculiar Moonwort	<i>Botrychium paradoxum</i>	Priority	G2				Y				Y	Y	
Upward-lobed Moonwort	<i>Botrychium ascendens</i>	Priority	G2			Y					Y	Y	Y
Stalked Moonwort	<i>Botrychium pedunculatum</i>	Priority	G2								Y	Y	
Narrowleaf Grape Fern	<i>Botrychium lineare</i>	Priority	G1								Y	Y	

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Appendix 4. Priority and ESA listed and candidate invertebrate species by ecoregion

Common Name	Scientific Name	Taxonomic Group	USFS Priority	Rounded Rank	EOS documented on USFS in PNW Coast	EOS documented on USFS in Will. Valley - Puget Trough	EOS documented on USFS in North Cascades	EOS documented on USFS in East Cascades	EOS documented on USFS in Klamath Mountains	EOS documented on USFS in Col. Plateau	EOS documented on USFS in Can. Rockies	EOS documented on USFS in Blue Mountains	EOS documented on USFS in Okanagan	EOS documented on USFS in West Cascades
Blind Carabid Beetle	<i>Pterostichus rothi</i>	Insects	Priority	G1	Y									
Oregon Plant Bug	<i>Lygus oregonae</i>	Insects	Priority	G2										
Franklin's Bumble Bee	<i>Bombus franklini</i>	Insects	Priority	G1					Y					
Mardon Skipper	<i>Poales mardon</i>	Insects	ESA listed	G2			Y							Y
Hoary Elfyn	<i>Callophrys polius maritima</i>	Insects	Priority	T2										
Insular Blue Butterfly	<i>Plebejus saepiolus littoralis</i>	Insects	Priority	T2	Y									
Oregon Silverspot Butterfly	<i>Speyeria zerene hippolyta</i>	Insects	ESA listed	T1	Y									
Siskiyou Chloebatis Grasshopper	<i>Chloebatis aspasma</i>	Insects	Priority	G1										Y
Wahkeena Falls Flightless Stonefly	<i>Zapada wahkeena</i>	Insects	Priority	G2										Y
Columbia Gorge Neothremman Caddisfly	<i>Neothremma andersoni</i>	Insects	Priority	G1										Y
Haddock's Rhyacophilan Caddisfly	<i>Rhyacophila haddocki</i>	Insects	Priority	G1	Y									
Scott's Caddisfly	<i>Alkomyia scotti</i>	Insects	Priority	G1			Y							Y
Montane Peaclam	<i>Pisidium ultramontanum</i>	Molluscs	Priority	G1			Y							
Keeled Jumping Slug	<i>Hemphillia burringtoni</i>	Molluscs	Priority	G1	Y	Y								
Panther Jumping Slug	<i>Hemphillia pantherina</i>	Molluscs	Priority	G1										
Tillamook Westernslug	<i>Hesperarion mariae</i>	Molluscs	Priority	G2	Y									
Evening Fieldslug	<i>Deroceras hesperium</i>	Molluscs	Priority	G2			Y							Y
Columbia Oregonian	<i>Cryptomastix hendersoni</i>	Molluscs	Priority	G1			Y							Y
Siskiyou Hesperian	<i>Vespericola sierranus</i>	Molluscs	Priority	G2										Y
Grand Coulee Mountainsnail	<i>Oreohelix junii</i>	Molluscs	Priority	G2					Y					Y
Oregon Shoulderband	<i>Helminthoglypta hertleini</i>	Molluscs	Priority	G1										Y

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Common Name	Scientific Name	Taxonomic Group	USFS Priority	Rounded Rank	EOS documented on USFS in PNW Coast	EOS documented on USFS in Will. Valley - Fugate Trough	EOS documented on USFS in North Cascades	EOS documented on USFS in East Cascades	EOS documented on USFS in Klamath Mountains	EOS documented on USFS in Col. Plateau	EOS documented on USFS in Can. Rockies	EOS documented on USFS in Blue Mountains	EOS documented on USFS in Okanagan	EOS documented on USFS in West Cascades
A Terrestrial Snail	<i>Monadenia fidelis minor</i>	Molluscs	Priority	T2			Y							Y
Pacific Sideband	<i>Monadenia fidelis beryllica</i>	Molluscs	Priority	T1	Y				Y					Y
Siskiyou Shoulderband	<i>Monadenia chaceana</i>	Molluscs	Priority	G2					Y					
Ashy Pebblesnail	<i>Fluminicola fuscus</i>	Molluscs	Priority	G2										
Archimedes Pyrg	<i>Pyrgulopsis archimedis</i>	Molluscs	Priority	G1			Y							
Robust Walker	<i>Pomatopsis binneyi</i>	Molluscs	Priority	G1										
Pacific Walker	<i>Pomatopsis californica</i>	Molluscs	Priority	G1	Y									
Barren Juga	<i>Juga hemphilli hemphilli</i>	Molluscs	Priority	T1										
Shortface Lanx	<i>Fisherola nuttalli</i>	Molluscs	Priority	G2								Y		
Highcap Lanx	<i>Lanx alta</i>	Molluscs	Priority	G2			Y							
Scale Lanx	<i>Lanx klamathensis</i>	Molluscs	Priority	G1			Y							
Rotund Lanx	<i>Lanx subrotunda</i>	Molluscs	Priority	G2										Y
Great Basin Ramshorn	<i>Helisoma newberryi newberryi</i>	Molluscs	Priority	T1				Y						
Lined Rams-horn	<i>Vorticifex effusa diagonalis</i>	Molluscs	Priority	T1				Y						

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The Nature Conservancy prioritization process for USFS Region 6

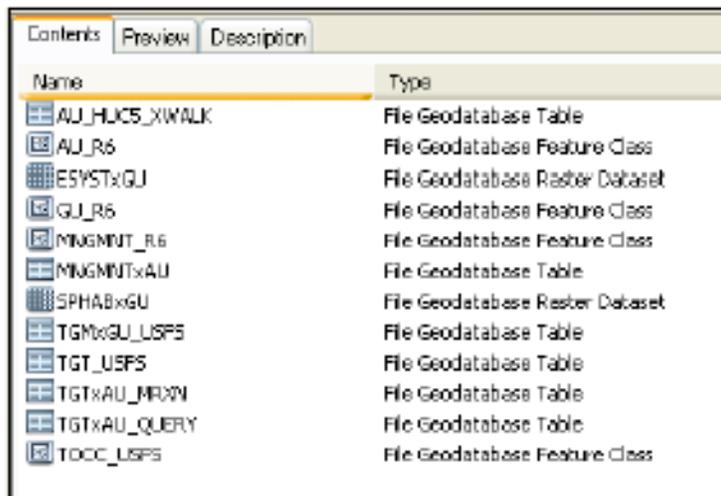
US Forest Service Region 6 Terrestrial Prioritization: Species and Habitat Lists and Spatial Prioritization

Appendix 5 Geodatabase Use and Discussion

The Nature Conservancy
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Steve Buttrick, Kenneth Popper, Michael Schindel, Abby Wyers
January 31, 2011

Data Products and Uses

A 440 megabyte geodatabase was delivered to the USFS. Included were 4 polygonal feature classes, 2 raster datasets and 6 tabular datasets.



Name	Type
AU_HUC5_XWALK	File Geodatabase Table
AU_R6	File Geodatabase Feature Class
ESYSTxGU	File Geodatabase Raster Dataset
GU_R6	File Geodatabase Feature Class
MINGMNT_R6	File Geodatabase Feature Class
MINGMNTxAU	File Geodatabase Table
SPHABxGU	File Geodatabase Raster Dataset
TGMxGU_USFS	File Geodatabase Table
TGT_USFS	File Geodatabase Table
TGTxAU_MRXN	File Geodatabase Table
TGTxAU_QUERY	File Geodatabase Table
TCCC_USFS	File Geodatabase Feature Class

ArcCatalog view of the USFS R6 Terrestrial Priorities Geodatabase

These data are designed to be used in a GIS system with relations established (using the Relate command) based on primary keys. These relationships give the end user a great deal of flexibility to design spatial and tabular queries.

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A brief description of each follows.

AU_HUC5_XWALK – This table assists with aggregating the HUC6 watersheds used in this assessment to HUC5s. Multipliers are given to appropriately scale numeric metrics to the larger watersheds.

AU_R6 – This polygonal feature class represents assessment units used in the analysis. They are based upon HUC6 watersheds. All data included in the analysis are summarized by these watersheds. A rich suite of attributes describe the size, suitability ranking, biodiversity ranking, and final scores for each of the 4 Marxan analyses performed for the prioritization. Membership in TNC's ecoregional priorities is also indicated.

ESYSTxGU – This raster dataset is a depiction of the vegetation and land use across the entire R6 region. Areas of natural vegetation are classified to NatureServe's Ecological System classification v 1.13. Areas converted from a natural state generally follow National Land Cover Dataset standard (NLCD 2001). Vegetation and land use data were then combined with the ecoregions (GU_R6) to allow benchmarks to be set in each ecoregion independently.

GU_R6 - This polygonal feature class represents the ecoregions, or Geographic Units, used to stratify all conservation targets. Many conservation targets occur across vast portions of R6. By splitting the range of these conservation targets along ecoregional lines, benchmarks can be established for each target x ecoregion combination independently. This methodology allows greater control of the amount and distribution of conservation targets captured in the final Marxan solutions.

MNGMNT_R6 - This polygonal feature class is a compilation of forest ownership (USFS, 2010) combined with a modified version of the Protected Areas Database v1.1 (USGS, 2010). Various overlapping management layers were combined on USFS owned. PAD v1.1 data were updated with relevant information and polygons for known data gaps, such as missing USFWS Refuges and Nature Conservancy preserves. The USFS management data was then combined with the modified PAD. To create the suitability index this layer was unioned with AUs, percentage of each AU in each class was multiplied by the weight assigned to create a "management cost" for each AU.

SPHABxGU - This raster dataset is a depiction of the "Special Habitats" across Oregon and Washington. "Special Habitats" were defined by the individual forests within Region 6 during development of their respective forest plans. Many separate data sources were used to compile this dataset. Examples of "Special Habitats" include several late seral forest types, wetlands, aspen forests, etc. These data were then combined with the ecoregions (GU_R6) to allow benchmarks to be set in each ecoregion independently.

TGMxGU_USFS - This table lists all the stratified conservation targets included in the USFS Region 6 Terrestrial Prioritization Marxan analysis. Values include the abundance of each species/habitat target by ecoregion, the amount of each on USFS administered lands, and the benchmarks used for Marxan analysis. 1291 target x ecoregion combinations are listed. This table is a primary input to Marxan.

TGT_USFS - This table contains basic information about all species and habitats considered for inclusion in the USFS Region 6 Terrestrial Prioritization. A conservation target is defined as a species or habitat of conservation interest. This table defines each conservation target and describes its taxonomy,

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rarity, range and legal protection status. These factors are used to determine a benchmark (numbers of populations or hectares of habitat) that Marxan attempts to capture in its solutions.

TGTxAU_MRXN - This table is a listing of all conservation targets by assessment units (AU). Attributes include the absolute and relative abundance for each target within each assessment unit (AU). This table is a primary input to Marxan.

TGTxAU_QUERY - This table is identical in format to TGTxAU_MRXN, but also includes records for terrestrial vertebrates that were not considered conservation targets for the R6 terrestrial prioritization.

TOCC_USFS - This dataset represents Element Occurrence (EO) records for rare and imperiled species across the full extent of USFS Region 6. An Element Occurrence is an area of land and/or water in which a species is, or was, present. An EO should have practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location. The EO often corresponds with the local population, but when appropriate may be a portion of a population or a group of nearby populations (e.g., metapopulation). Because they are defined on the basis of biological information, EOs may cross jurisdictional boundaries. EO records are most commonly created for current or historically known occurrences of native species of conservation interest. They may also be created, in some cases, for extirpated occurrences. These data are licensed for use by NatureServe and may not be distributed without prior permission.

Uses of the Data

As previously described, these data are designed to work together in a relational fashion. Attributes are topically parsed out across the tables and spatial data attributes. For example, the attributes that characterize the condition and disposition of each assessment unit in the prioritization are only included in the AU_R6 attribute table. This structure speeds the processing of queries by reducing file sizes. We have included some duplicative attributes in multiple tables, like scientific and common names, to make each table more utilitarian for stand-alone use.

The basic building blocks of this analysis are the assessment units (AU-R6). These HUC6 based units are the resolution of data. As all conservation targets are summarized by these units, any query on the distribution of one or more these targets can be displayed with them. The AUSPATID is a unique integer code assigned to each. Relations can be established with this primary key to the AUxTGT tables. Selections in the AUxTGT tables can then be propagated through the relationship to select the appropriate AUs.

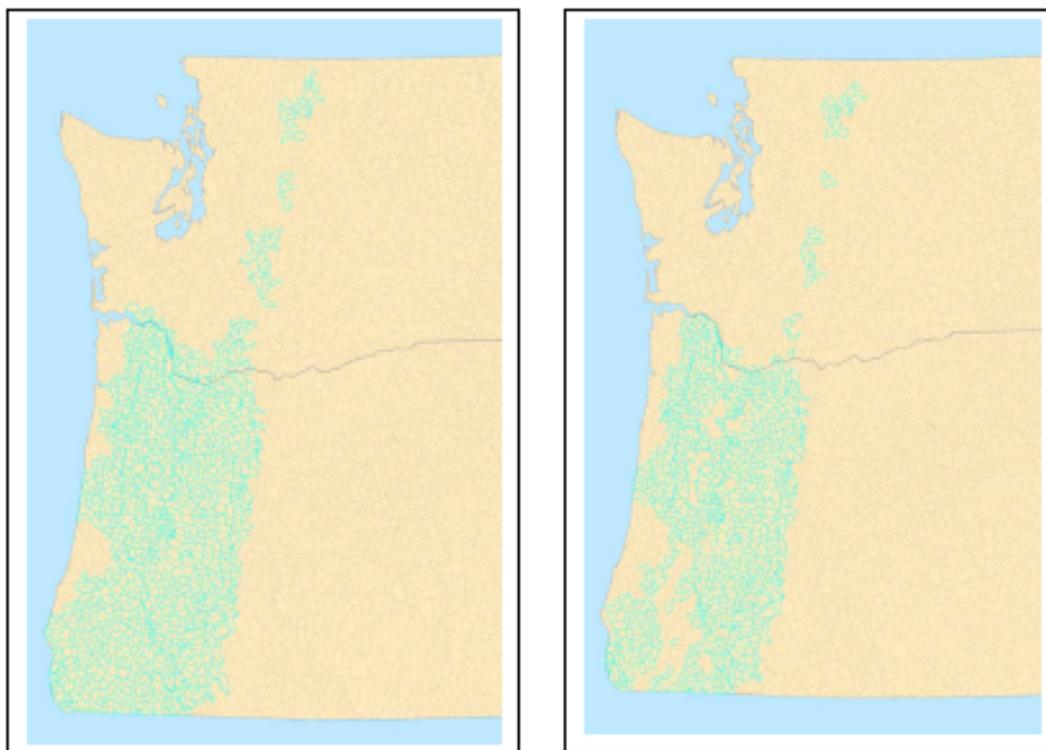
AUSPATID	GCOMNAME	GSCNAME	GELCODE	TGID	GID	MARXAN_ID	GUTGID
1	Wild Turkey (modeled dist)	<i>Meleagris gallopavo</i>	ABNLC14010	10422609	1001	905	100110422609
1	North Pacific Lowland Mixed Hardwood Conifer F	NA	CES204.873	4303	1001	1463	100180004303
1	Slender-billed Nuthatch (modeled dist)	<i>Sitta carolinensis aculeata</i>	ABPAJ010201	10065709	1001	1985	100110065709
1	North Pacific Broadleaf Lardlike Forest and Shrub	NA	CES204.846	4304	1001	1278	100180004304
1	Lezard Bunting (modeled dist)	<i>Passerina amoena</i>	ABFBK64020	10306009	1001	0	100110306009
1	Nashville Warbler (modeled dist)	<i>Vermivora ruficapilla</i>	ABFBK01090	10511809	1001	0	100110511809
1	Olive-sided Flycatcher (modeled dist)	<i>Contopus cooperi</i>	ABPAE33010	10222809	1001	1943	100110222809
1	Californian Woodpecker (modeled dist)	<i>Myiopsitta californica</i>	AMACC01120	10420709	1001	2086	100110420709
1	Ruffed Grouse (modeled dist)	<i>Bonasa umbellus</i>	ABNLC11010	10268709	1001	1901	100110268709
1	Purple Finch (modeled dist)	<i>Carpodacus purpureus</i>	ABFBY04020	10275909	1001	0	100110275909
1	Western Gnatcatcher (modeled dist)	<i>Sialia mexicana</i>	ABFDH10200	10125409	1001	2011	100110125409
1	Western Toad (modeled dist)	<i>Bufo boreas</i>	AAABB01030	10271409	1001	1721	100110271409
1	Chipping Sparrow (modeled dist)	<i>Spizella passerina</i>	ABFBK94020	10275809	1001	0	100110275809
1	Western Wood-Peevee (modeled dist)	<i>Contopus sordidulus</i>	ABPAE33050	10405209	1001	0	100110405209
1	Mountain Quail (modeled dist)	<i>Oreortyx pictus</i>	ABNLC24010	10471209	1001	1811	100110471209

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The Nature Conservancy prioritization process for USFS Region 6

Using the above excerpt from the TGTxAU table as an example, a user decides they wish to see the range of the Slender-billed Nuthatch across Region 6. This user has intelligently read the metadata embedded in the geodatabase ahead of time, and knows that the TGTID is the identifier for this species across its full range (the GUTGTID is the primary identifier for the target x ecoregion combination). After establishing a relate between the AUxTGT and AU_R6 datasets, a query is performed on the AUxTGT table to select all records of TGTID = 10065709. 1287 records are returned. Propagating this selection through to the AU_R6 feature class displays all 1287 AUs with Slender-billed Nuthatch.

Some of these AUs may only contain small amounts of the bird's habitat, and the user wishes to restrict the selection to those AUs with above average habitat density for the species. The RA (Relative Abundance) field from the AUxTGT table can be used to refine the selection. Generally speaking, higher RA values are better than lower, with 1 as the general boundary between "significant" and "not significant". Removing records from our selection with $RA < 1$ will then show the AUs with a significant presence of Slender-billed Nuthatches.



AUs outlined in blue contain Slender-billed Nuthatches. On the left, all AUs with any Nuthatch abundance are highlighted. On the right, only those with a significant presence of Nuthatches are displayed.

RA can also be used to compare the potential conservation value of multiple AUs against each other for specific conservation targets. Ranking all AUs with Slender-billed Nuthatches by RA from high to low will generally indicate which are more significant for the conservation of the species. However, as RA is a density measure, small AUs can have very high habitat density for a species without containing much

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The Nature Conservancy prioritization process for USFS Region 6

habitat. In these situations it may be wise to exclude extremely small AUs from relative rankings by this method.

Another RA based metric is present in the AU_R6 attribute table; RA_SCORE. This is calculated by summing the raw RA values in the AUxTGT_MRXN table for each AU, then normalizing on a 0 - 1000 scale. This metric is an indicator of target richness and abundance, and may be useful when deciding between two or more AUs for conservation or restoration action. However, as this metric is calculated on an AU by AU basis, it lacks the context of the prioritization scores themselves. For example, an AU can achieve a large RA_SCORE because it has a high abundance of several common species. Another AU may have a lower RA_SCORE even though it contains rare targets, or targets confined to a very small subset of AUs. The prioritization scores should always be considered as part of any evaluation of the suitability of an AU for conservation or restoration action, with metrics like RA_SCORE used as tiebreakers.

Establishing relations from the AU_R6 feature dataset to the AUxTGT tables will allow the user to quickly answer additional questions such as what species and habitats are in an AU or group of AUs? Joining in attributes from the TGT table extends the query potential to such questions as, which of those species and habitats are endemics? What is the rarest species in the group? Which AUs have endemic species across the entire region? Which AUs have endangered species? Of all the AUs with endangered species, which scored best in the Marxan analysis?

A little time spent understanding the content and relations between the features in the R6 geodatabase will give the user the power to answer a huge variety of questions germane to the USFS Terrestrial prioritization process. The following two maps display the full range of the Slender-billed Nuthatch (left) and areas with a higher density of occupied habitat within that range (right) based upon queries to the R6 geodatabase.

TRACS: Appendix B

Mapping of Habitat for Vertebrate Species

Mapping of Habitat for Vertebrate Species

All vertebrates except for the Greater Sage Grouse (which is not forest-dependent) were modeled for the TRACS prioritization process using new deductive wildlife habitat relationship models developed by the Oregon Biodiversity Information Center (ORBIC) in consultation with The Nature Conservancy (TNC) and the Forest Service (FS). The only exceptions were Black-tailed Deer and Wild Turkey, for which Forest Service models were used. Species were separated into forest and non-forest models, which used Gradient Nearest Neighbor (GNN) and Ecological Systems data, respectively.

Deductive Habitat Models

Forest Habitats

ORBIC developed the forest habitats model based on the GNN data and detailed habitat conditions compiled from published literature. The GNN data were spatially combined in ArcGIS with the 6th field HUCs and a non-forest mask to eliminate non-forested habitats.

Good, Fair, and Poor habitat conditions were identified based on a set of rules developed for each species. This rule set included the upper and lower bounds of habitat suitability using various forest parameters from GNN, and ranks of the quality and confidence in a measure. Weights were assigned to each habitat measure, with higher weights for dominant habitat variables. Habitat conditions were mapped in watersheds (either 6th field HUCs in Oregon or 5th field HUCs in Washington) where the species occurrence database (maintained for both states by ORBIC) showed a current or historic Element Occurrence.

Riparian Habitats

TNC modified the habitat models developed by ORBIC for riparian-associated species because the GNN-based habitat models overestimated habitat for these species. The acres of habitat were adjusted for each watershed based on stream density and acres of lakes and ponds.

Non-Forest Habitats

Vertebrate models for non-forest habitats were based on wildlife habitat relationships mapped for the ReGAP project (Csuti and Crist 1998). The processing involves overlaying the HUCs, forest mask (to eliminate forested habitats), and GAP Ecological Systems data. This is subsequently combined in the database management with the distribution data and wildlife habitat matrix data.

Socially and Economically Important Vertebrate Models

For the Socially and Economically Important Vertebrate Species on the final Priority Vertebrate list, three (turkey, deer and elk) had a Regional rank of Low Priority, so they were not included in the list of 120 species for which ORBIC developed new habitat models. The FS provided models for these three species using National Land Cover Data and physical variables such as elevation, aspect, and slope.

References

Csuti, B. and P. Crist. 1998. Methods for Assessing Accuracy of Animal Distribution Maps, Gap Analysis Program, University of Idaho, Moscow, Idaho. <http://www.gap.uidaho.edu/>

TRACS: Appendix C

Query Tool

Query Tool

The Forest Service (FS) developed TRACS biotic priorities (mostly at the HUC5 level) starting with a comprehensive biotic database developed by The Nature Conservancy (TNC; Appendix A) and modified by additional FS analyses. The complete dataset is available in a file geodatabase. A subset of the data is available in a personal geodatabase with a Query Tool that allows the user to more easily access the data using canned queries. This personal geodatabase includes a minimal data set (for FS lands only) that supports the Query Tool. The TRACS query tool was originally created in 2011, and then updated for ArcGIS version 10 in 2012. The database is in MS Access (TRACS_USFS_only_APR_2012.mdb) and can be imported into an ArcGIS project (mxd). The built-in Query Tool provides easy data access, and allows users to filter data and display the results in ArcMAP. Data are available at both the HUC6 and HUC5 scale (AU_HUC6_R6 and AU_HUC5_R6 layers).

The query tool and supporting database file can be downloaded and installed on a local PC, or they can be used in the Citrix environment. The personal geodatabase and Query Tool are stored along with instructions (*TRACS Query Tool for ArcGIS10.docx*) in a zip file on the T drive:

T:\FS\NFS\R06\Project\NR\TRACS2011\GIS\Tool\ TRACS_QueryTool_AddIn_Arc10.zip

This appendix provides an overview of the Query Tool and a few examples. Please see the *TRACS Query Tool for ArcGIS10.docx* for detailed instructions for using the tool.

Target Query

The Target Query (Figure 1) allows the user to identify and map watersheds where Priority Habitats or Species occur. Geographic criteria include Assessment Unit size (HUC5 or HUC6), Forest, and Watershed. Other filters are Target Group, Taxonomic Group, individual species or habitats, and RA values. The user can also create and export tables of all species, Priority Species, and/or habitats within a specific geographic area (Forest, watershed, or ecoregion). Watersheds that match query results can also be displayed on the map.

Management Query

The Management Query (Figure 2) is similar to the Target Query, but allows the user to determine the percent of a watershed or multiple watersheds that occurs in the different Management Classes. The list of watersheds can be filtered by Priority Watersheds only, ecoregion, % MARXAN Priority Score, and/or HUC5 Relative Abundance. The Management Query creates tables that can be exported, and watersheds that match query results can also be displayed on the map.

TRACS: Appendix C

Query Tool

TRACS Query

AU_HUC5_R6 Assessment Units

Deschutes National Forest, Fremont-Winema National Forest Forest

Management Query Target Query

All Watershed

Conserve Restore Priority Watershed

All Ecoregion

Priority Special Habitats Priority Target Group

All Taxonomic Group

All Common Name

All Scientific Name

1 Regional Priority

1 Relative Abundance

Clear All Selected Criteria 54 Records

List Contents of Selected Features Show Selection on Map Add Table to ArcMap

oid	AUSPATID	Forest	Watershed
1	427	Deschutes National Forest	Jack Creek-Williamson River
2	427	Deschutes National Forest	Jack Creek-Williamson River
3	427	Deschutes National Forest	Jack Creek-Williamson River
4	427	Deschutes National Forest	Jack Creek-Williamson River
5	389	Deschutes National Forest	Potter Canyon-Deschutes River
6	385	Deschutes National Forest	Squaw Creek
7	385	Deschutes National Forest	Squaw Creek
8	385	Deschutes National Forest	Squaw Creek
9	385	Deschutes National Forest	Squaw Creek

Figure 1. Target Query Form

TRACS Query

AU_HUC5_R6 Assessment Units

Deschutes National Forest, Fremont-Winema National Forest Forest

Management Query Target Query

All Watershed

Conserve Restore Priority Watershed

All Ecoregion

Conservation Emphasis Management Class

50 % Marxan Priority Score

125 HUC5 Relative Abundance

Clear All Selected Criteria 1 Records

List Contents of Selected Features Show Selection on Map Add Table to ArcMap

oid	AUSPATID	Forest	Watershed	Priority Watershed
1	430	Fremont-Winema National Forests	Upper Sycan River	Conserve Restore

Figure 2. Management Query Form

Examples

The following examples illustrate several ways to use the Query Tool to get desired information. The categories with drop-down lists filter out data not meeting the selected criteria, thus narrowing the items in subsequently selected drop-down lists. As a result, there are various ways to get the same data by filtering in different ways. For example, selecting desired criteria from the “Priority Target Group” or from a combination of “Taxonomic Group” and “Regional Priority” will result in a similar list of species remaining in the drop-down list for “Common Name.” These examples relate back to some of the examples given in Chapter 2 of the main document.

Priority Species - White-headed Woodpecker

The Target Query can be used to locate important watersheds for White-headed Woodpeckers in the Middle Rockies/Blue Mountains Ecoregion. Figure 3 illustrates one way to query for those watersheds.

1. Select the Assessment Unit scale: HUC5.
2. Select Forest: “All Forests” is used in this example, but could be limited to one or more forests.
3. Select the ecoregion: Middle Rockies/Blue Mountains.
4. Select the Priority Target Group: Priority Vertebrates – Modeled Distribution.
5. Select the Common Name: White-headed Woodpecker – modeled dist.
6. Move the Relative Abundance slider to 1 to locate watersheds important to the species.
7. The results are displayed in the table at the bottom of the query window. The table can be added to ArcMap, saved and exported, or copied and pasted into Excel or Word.

TRACS: Appendix C

Query Tool

The screenshot shows the TRACS Query tool interface. At the top, the Assessment Units are set to 'AU HUC5_R6 1'. The Forest dropdown is set to 'All Forests'. The Ecoregion dropdown is set to 'Middle Rockies - Blue Mountains'. The Priority Target Group dropdown is set to 'Priority Vertebrates-Modeled Distribution'. The Common Name dropdown is set to 'White-headed Woodpecker - modeled dist'. The Relative Abundance slider is set to 1. The 'Add Table to ArcMap' button is highlighted with a red circle and labeled 7. The table at the bottom shows 95 records with columns for oid, AUSPATID, Forest, Watershed, Priority Watershed, and Ecoregion.

oid	AUSPATID	Forest	Watershed	Priority Watershed	Ecoregion
1	1076	Malheur National Forest	Bear Creek	Non-priority	Middle Rockies - Blue Mountains
2	1021	Malheur National Forest	Beech Creek	Non-priority	Middle Rockies - Blue Mountains
3	1040	Malheur National Forest	Big Creek-Middle Fork John Day River	Non-priority	Middle Rockies - Blue Mountains
4	1038	Malheur National Forest	Bridge Creek-Middle Fork John Day River	Non-priority	Middle Rockies - Blue Mountains
5	1039	Malheur National Forest	Camp Creek-Middle Fork John Day River	Non-priority	Middle Rockies - Blue Mountains

Figure 3. Example of a Target Query for watersheds important to White-headed Woodpecker.

Priority Habitat - Aspen Forests and Woodlands

The Target Query can be used to locate important watersheds for Aspen Forests and Woodlands in the Okanogan Ecoregion, Okanogan/Wenatchee National Forest. Figure 4 illustrates one way to query for those watersheds.

1. Select the Assessment Unit scale: HUC5.
2. Select Forest: Okanogan/Wenatchee National Forest in this example.
3. Select the ecoregion: Okanogan.
4. Select the Priority Target Group: Priority Special Habitats.
5. Select the Common Name: Aspen Forests and Woodlands.
6. Move the Relative Abundance slider to 1 to locate watersheds important to the habitat.
7. The results are displayed in the table at the bottom of the query window. The table can be added to ArcMap, saved and exported, or copied and pasted into Excel or Word.
8. The selected watershed can be shown on the map (Figure 5).

TRACS: Appendix C

Query Tool

The screenshot shows the TRACS Query tool interface. The 'Assessment Units' dropdown is set to 'AU HUC5R6 1'. The 'Forest' dropdown is set to 'Okanagan-Wenatchee National Forest'. The 'Target Query' tab is active. The 'Relative Abundance' slider is set to 1. The 'Show Selection on Map' and 'Add Table to ArcMap' buttons are circled in red. The table below shows the results of the query.

oid	AUSPATID	Forest	Watershed	Priority Watershed	Ecoregion
1	1122	Okanagan-Wenatchee National Forest	Loup Loup Creek-Okanagan River	NA	Okanagan
2	1130	Okanagan-Wenatchee National Forest	Lower Chewuch River	Non-priority	Okanagan
3	1121	Okanagan-Wenatchee National Forest	Omak Creek-Okanagan River	NA	Okanagan
4	1120	Okanagan-Wenatchee National Forest	Salmon Creek	Conserve Restora	Okanagan

Figure 4. Example of a Target Query for watersheds important Aspen Forest and Woodlands.

TRACS: Appendix C

Query Tool

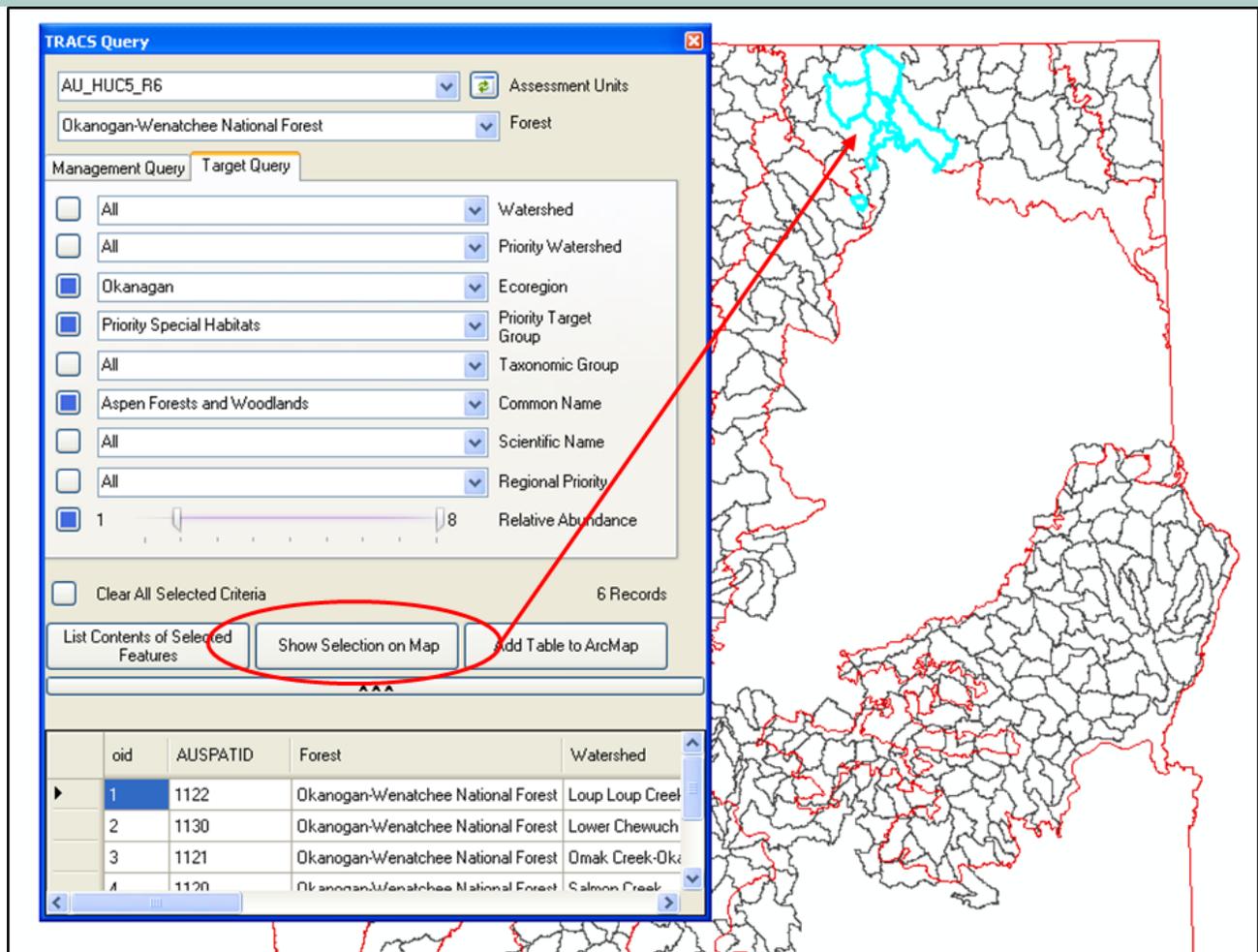


Figure 5. Aspen Forest and Woodland watersheds displayed on map.

Whitebark Pine and Clark's Nutcracker

The Target Query can be used to locate important watersheds for both Whitebark Pine and Clark's Nutcracker on the Wallowa-Whitman National Forest. In this example, the query was for watersheds with RA values ≥ 2 for both targets, which is a higher target value than in the previous examples. Figure 6 illustrates one way to query for those watersheds. The Lostine River is the only watershed that fits the criteria for both targets so it shows up twice in the results table, once for each species.

1. Select the Assessment Unit scale: HUC5.
2. Select Forest: Wallowa-Whitman National Forest.
3. Select the ecoregion: Middle-Rockies/Blue Mountains.
4. Select the Priority Target Groups: Priority Plants **and** Priority Vertebrates-Modeled Distribution.
5. Select the Common Names: Clark's Nutcracker **and** Whitebark Pine.
6. Move the **Relative Abundance slider to 2** to locate watersheds important to the habitat..
7. The results are displayed in the table at the bottom of the query window. The table can be added to ArcMap, saved and exported, or copied and pasted into Excel or Word.

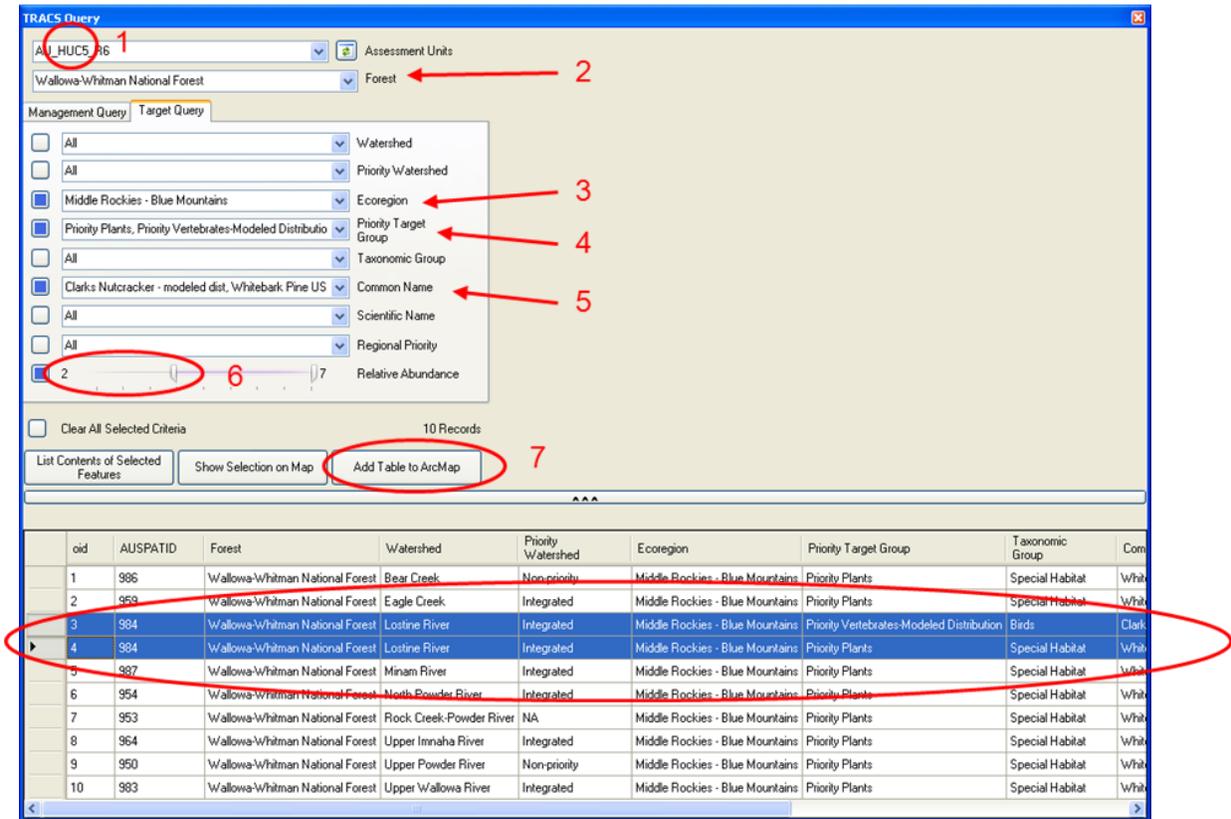


Figure 6. Watersheds important to both Whitebark Pine and Clark's Nutcracker.

The Management Query form can then be used to see which Management Classes occur in the Lostine River Watershed, and the percentage of each class. In this case the most common management class is Preservation at 68.69% (Figure 7).

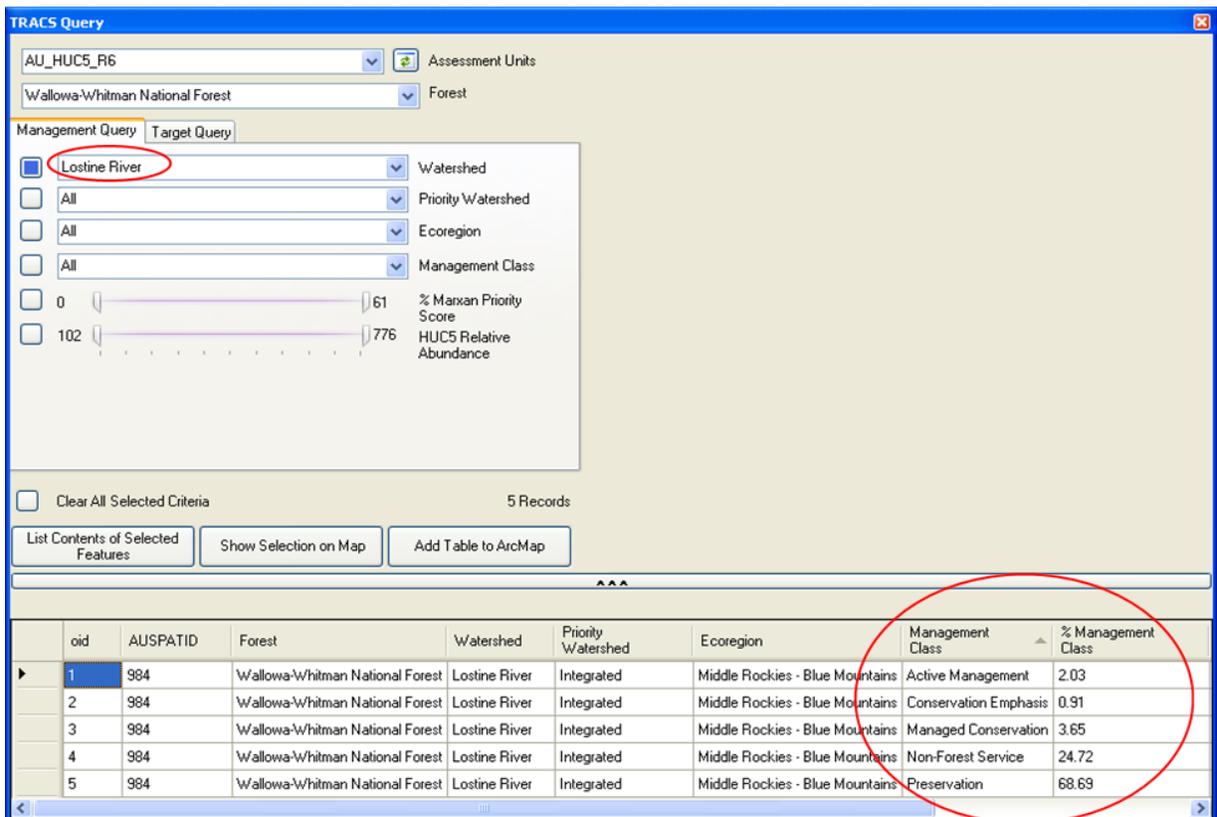


Figure 7. Management Class percentages for the Lostine River Watershed.

TRACS: Appendix D

Relative Abundance

Relative Abundance (RA)

Individual RA values derived from the TNC MARXAN analysis are a key piece of the data available for Priority Species and Habitats, and are provided in both the file and personal geodatabases. RAs indicate which watersheds are most important for Priority Species and Habitats. RAs were important criteria used for prioritizing watersheds since they indicate relative conservation value. However, **RA values were not used to prioritize species or habitats**; this process relied more on rarity, threats, vulnerability, and ecoregional significance.

Individual RA values were calculated for all targets—priorities or otherwise—where possible. The individual RA value is a unit-less measure of how prevalent the target species or habitat is in the AU relative to other AUs in the ecoregion. Individual RAs measure target density in a watershed, thus an RA of 1 indicates the watershed has the expected density for that ecoregion if densities were evenly distributed. RA >1 indicates that the target is more prevalent in the AU than would be expected in another AU of similar size in the same ecoregion, and RA <1 means the target is less prevalent than expected. Individual RAs range from 0 to 8.9; the higher the individual RA the more important that AU is to the species or habitat in that ecoregion. Locally endemic species, such as most Priority Plants, will tend to have higher RAs; more widely distributed species, such as Socially and Economically Important Vertebrates, will tend to have lower RAs.

Individual RA values are most useful to determine ideal watersheds for species and habitat conservation and restoration. Look for watersheds with high RA values for the target of interest, especially where multiple targets overlap in great abundance. The Examples section in Chapter 2 illustrates this principle. If RA values are missing (see below), use local knowledge to help identify management opportunities for those these species and habitats.

Consider these points to use individual RA values thoughtfully:

- RA values are only comparable within ecoregions since they are relative densities compared to the overall density in each ecoregion.
 - ◊ It is possible to *roughly* compare them across ecoregions for ecoregional priorities only, since those species and habitats are generally well represented in the ecoregions where they have been designated priorities.
 - ◊ Confusion can arise if there is not much of a target resource in an ecoregion but the entire target is in only one watershed, because the individual RA value will be high even though the abundance is insignificant for both the watershed and the ecoregion.
- RA is a natural logarithmic measure, so each RA value increment represents $\times 2.72$ increase in density. A conservation target with RA = 3 is 7.3 times denser (more abundant) in that watershed than if RA = 1, and RA = 5 it is 50 times denser. Small differences in RA value can mean big differences in abundance.
- RA = 1 is a somewhat arbitrary threshold since values close to 1 still indicate a fairly important resource (just less than expected); there may still be places in the watershed where the resource is quite important. Here especially local knowledge enters into making sound conservation decisions.
- To summarize: individual RA value is basically a density function relative to overall density in an ecoregion. The formula is: $(AU_ABUND/AMT_KNOWN)/(AU_HECT/GU_HECT)$, then for values ≥ 1 , $RA = \ln(RA)+1$; where AU_ABUND=target abundance in the watershed, AMT_KNOWN=target abundance in the ecoregion, AU_HECT=size of the watershed in hectares, and GU_HECT=size of the ecoregion in hectares.

TRACS: Appendix D

Relative Abundance

Not all Priority Species and Habitats have RA values because some were not included in the MARXAN analysis. The entire group of Socially/Economically/Culturally Important Plants was not included in the MARXAN analysis and thus they have no RA values.

It is important to note that species and habitats without RA values will not occur in the geodatabases or Access database. These species are included in the Excel spreadsheets in ecoregions in which they are an ecoregional priority, but they will not be assigned to any watersheds (Table D-1). Note that Socially/Economically/Culturally Important Plants are not included in any spreadsheet or geodatabase; see Appendix G for a list of these species by ecoregion.

Species and habitats were not included in MARXAN for one of the following reasons (see 3rd column in Table D-1):

1. Maps were not developed for some vertebrate species and three of the Priority Habitats.
2. Known locations indicated presence in ecoregions where habitat maps did not.
3. The recovery area was used instead of a habitat map for the Grizzly Bear.
4. Some location data for plants were not used due to age or quality of the data.
5. TNC data did not include some of the most recent sites for sensitive species; occurrence data from the Regional Forester's Sensitive Species list were used to assign these species to ecoregions.

Table D-1. Priority Species without RA values for given ecoregions.

Species/Habitat	Ecoregion where a priority but w/out RAs	Reason for no RAs	Group
Dry Meadows	Canadian Rockies, East Cascades/Modoc Plateau, Klamath Mountains, Mid-Rockies/Blue Mountains, Okanagan, Pacific Northwest Coast, West Cascades	1	Habitat*
Golden Chinquapin	Klamath Mountains, Pacific Northwest	1	Habitat
Olympic Temperate Rainforest	Pacific Northwest Coast	1	Habitat
American Beaver	East Cascades, Klamath Mountains, Pacific Northwest Coast, West Cascades	1	Vertebrates
Black-tailed Deer	Klamath Mountains, North Cascades, Pacific Northwest Coast, West Cascades	1	Vertebrates
Brown (Grizzly)Bear	Canadian Rockies, West Cascades	3	Vertebrates
Fisher (Rocky Mountain Sub-population)	Mid-Rockies/Blue Mountains	1	Vertebrates
Gray Wolf	Canadian Rockies	2	Vertebrates
Greater Sage Grouse	Mid-Rockies/ Blue Mountains	1	Vertebrates
Mule Deer	Klamath Mountains	2	Vertebrates
White-tailed Deer	Canadian Rockies, Mid-Rockies/Blue Mountains, West Cascades	1	Vertebrates

*The following habitats were mapped (sometimes incompletely) and have RA values, but were not included in MARXAN: Cottonwood Riparian, Deciduous Riparian (Willows and Other Shrubs), Grassland/Native Bunch Grass, Late-seral High-elevation Fir Forests, Marshes, Port Orford Cedar, Shrub Steppe, Springs and Seeps, Southwest Oregon Mixed Pine, Western Redcedar/Western Hemlock.

TRACS: Appendix D

Relative Abundance

Species/Habitat	Ecoregion where a priority but w/out RAs	Reason for no RAs	Group
<i>Agrostis howellii</i>	East Cascades/Modoc Plateau	4	Vascular Plants
<i>Boletus pulcherrimus</i>	East Cascades/Modoc Plateau	4	Fungi
<i>Botrychium lineare</i>	Mid-Rockies/Blue Mountains	4	Vascular Plants
<i>Botrychium paradoxum</i>	Mid-Rockies/Blue Mountains	4	Vascular Plants
<i>Calliergon trifarium</i>	East Cascades/Modoc Plateau	4	Nonvascular Plants
<i>Campylopus schmidii</i>	Pacific Northwest Coast	4	Nonvascular Plants
<i>Cardamine pattersonii</i>	Pacific Northwest Coast	4	Vascular Plants
<i>Encalypta brevipes</i>	Klamath Mountains	4	Nonvascular Plants
<i>Erioderma soledatum</i>	Pacific Northwest Coast	4	Lichens
<i>Fritillaria gentneri</i>	West Cascades	4	Vascular Plants
<i>Gastroboletus vividus</i>	Klamath Mountains	4	Fungi
<i>Hypogymnia duplicata</i>	West Cascades	4	Lichens
<i>Leioderma soledatum</i>	Pacific Northwest Coast	4	Lichens
<i>Lobaria linita</i>	North Cascades, West Cascades	4	Lichens
<i>Lophozia laxa</i>	West Cascades	4	Nonvascular Plants
<i>Martellia idahoensis</i>	Pacific Northwest Coast	4	Fungi
<i>Meesia uliginosa</i>	Klamath Mountains	4	Nonvascular Plants
<i>Nephroma occultum</i>	West Cascades	4	Lichens
<i>Pannaria rubiginosa</i>	Pacific Northwest Coast	4	Lichens
<i>Pseudocyphellaria mallota</i>	West Cascades	4	Lichens
<i>Ramalina pollinaria</i>	West Cascades	4	Lichens
<i>Rhizomnium nudum</i>	West Cascades	4	Nonvascular Plants
<i>Sullivantia oregana</i>	East Cascades/Modoc Plateau	4	Vascular Plants
<i>Tetraphis geniculata</i>	North Cascades, East Cascades/Modoc Plateau, West Cascades	4	Nonvascular Plants
<i>Tholurna dissimilis</i>	East Cascades/Modoc Plateau, West Cascades	4	Lichens
<i>Usnea longissima</i>	Pacific Northwest Coast, West Cascades	4	Lichens
Barren juga	West Cascades	5	Invertebrates
Basalt Juga	East Cascades/Modoc Plateau	5	Invertebrates
Columbia Oregonian	Pacific Northwest Coast	5	Invertebrates
Deschutes Sideband	East Cascades/Modoc Plateau	5	Invertebrates
Grand Coulee Mountainsnail	East Cascades/Modoc Plateau	5	Invertebrates

TRACS: Appendix D

Relative Abundance

Species/Habitat	Ecoregion where a priority but w/out RAs	Reason for no RAs	Group
Insular Blue Butterfly	Pacific Northwest Coast	5	Invertebrates
Panther jumping slug	West Cascades	5	Invertebrates
Robust Walker	Klamath Mountains, Pacific Northwest Coast	5	Invertebrates
Siskiyou Chloea Grasshopper	Klamath Mountains, West Cascades	5	Invertebrates
Siskiyou hesperian	West Cascades	5	Invertebrates
Taylor's Checkerspot Butterfly	Pacific Northwest Coast	5	Invertebrates

Group RA scores were calculated by assessment unit (watershed or subwatershed) for groups of Priority Species and Habitats using Individual RA values. Priority groups included: Vertebrates, Socially and Economically Important Vertebrates, Plants, and Habitats. The group RA scores were calculated by summing the individual RA values for Priority Species and Habitats among groups, and normalizing them for AU size. Group RA scores range from 0 to 1000.

For Priority Species and most Habitats, group RAs were used to identify Priority Watersheds. As a result, the most important watersheds for any particular Priority Species or Priority Habitat may not be a TRACS Priority Watershed. The exception is habitats associated with Conservation and Restoration Watersheds that were identified as priorities specifically due large amounts (e.g., high individual RA value) of one or more Priority Habitats.

TRACS: Appendix E

Priority Vertebrates and Socially/Economically Important Vertebrates

Priority Species	Scientific name	Regional Rank ¹	Ecoregional Priority	Ecoregional Priority Ratings ²																
				Canadian Rockies	Columbia Plateau	East Cascades/ Modoc Plateau	Klamath	Middle Rockies/ Blue Mountains	North Cascades	Okanagan	Pacific Northwest Coast	West Cascades								
Clark's Nutcracker	<i>Nucifraga columbiana</i>	M	Y																	
Cordilleran Flycatcher	<i>Empidonax occidentalis</i>	M	N																	
Dusky Grouse	<i>Dendragapus obscurus</i>	M	Y									SE								
Flammulated Owl	<i>Otus flammeolus</i>	H	Y																	
Great Gray Owl	<i>Strix nebulosa</i>	H	Y																	
Greater Sage-grouse	<i>Centrocercus urophasianus</i>	ESA, SE ³	Y																	
Green-tailed Towhee	<i>Pipilo chlorurus</i>	M	N																	
Harlequin Duck	<i>Histrionicus histrionicus</i>	H	Y																	
Lewis's Woodpecker	<i>Melanerpes lewis</i>	M	Y																	
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	ESA	Y																	
Mountain Chickadee	<i>Poecile gambeli</i>	M	N																	
Mountain Quail	<i>Oreortyx pictus</i>	M	N																	
Northern Goshawk	<i>Accipiter gentilis</i>	H	Y																	
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	ESA	Y																	
Northern Waterthrush	<i>Seiurus noveboracensis</i>	M	Y																	
Olive-sided Flycatcher	<i>Contopus cooperi</i>	M	N																	
Peregrine Falcon	<i>Falco peregrinus</i>	H	Y																	
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	M	Y																	
Pygmy Nuthatch	<i>Sitta pygmaea</i>	M	N																	
Red-eyed Vireo	<i>Vireo olivaceus</i>	H	Y																	

TRACS: Appendix E

Priority Vertebrates and Socially/Economically Important Vertebrates

Priority Species	Scientific name	Regional Rank ¹	Ecoregional Priority	Ecoregional Priority Ratings ²										
				Canadian Rockies	Columbia Plateau	East Cascades/ Modoc Plateau	Klamath	Middle Rockies/ Blue Mountains	North Cascades	Okanagan	Pacific Northwest Coast	West Cascades		
Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>	M	N											
Ruby-crowned Kinglet	<i>Regulus calendula</i>	M	N											
Ruffed Grouse	<i>Bonasa umbellus</i>	SE	Y							SE				
Sharp-shinned Hawk	<i>Accipiter striatus</i>	M	N											
Slender-billed Whitebreasted Nuthatch	<i>Sitta carolensis acule- ata</i>	M	N											
Spruce Grouse	<i>Falcapennis canadensis</i>	H	Y	H		H					VH			
Townsend's Solitaire	<i>Myadestes townsendi</i>	M	N											
Upland Sandpiper	<i>Bartramia longicauda</i>	M	Y			H								
Vaux's Swift	<i>Chaetura vauxi</i>	M	N											
Willow Rosy-finch	<i>Leucosticte tephrocotis wallowa</i>	VH	Y					H						
Western Bluebird	<i>Sialia mexicana</i>	M	N											
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>	ESA	Y										VH	
White-headed Woodpecker	<i>Picoides albolarvatus</i>	H	Y						H					
Wild Turkey	<i>Meleagris gallopavo</i>	SE	Y	SE						SE				
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	H	Y			H								
Mammals														
American Beaver	<i>Castor canadensis</i>	SE	Y			SE	SE						SE	SE
American Marten	<i>Martes americana</i>	H	Y				VH		H			H		H
Bighorn Sheep	<i>Ovis canadensis</i>	M, SE ³	Y						H, SE ³			H, SE ³		

TRACS: Appendix E

Priority Vertebrates and Socially/Economically Important Vertebrates

Priority Species	Scientific name	Regional Rank ¹	Ecoregional Priority	Ecoregional Priority Ratings ²										
				Canadian Rockies	Columbia Plateau	East Cascades/ Modoc Plateau	Klamath	Middle Rockies/ Blue Mountains	North Cascades	Okanagan	Pacific Northwest Coast	West Cascades		
Black-tailed Deer	<i>Odocoileus hemionus columbianus</i>	SE	Y				SE		SE			SE	SE	VH
Brown Bear (Grizzly)	<i>Ursus arctos</i>	ESA	Y	VH							VH			
Californian Myotis	<i>Myotis californicus</i>	M	N											
Canada Lynx	<i>Lynx canadensis</i>	ESA	Y	VH				VH			VH			
Elk	<i>Cervus elaphus</i>	SE	Y	SE	SE	SE	SE	SE	SE	SE			SE	SE
Fisher (West Coast DPS)	<i>Martes pennanti</i>	ESA	Y										VH	VH
Fisher (Rocky Mountain DPS)	<i>Martes pennanti</i>	H	Y					H						
Gray Wolf	<i>Canis lupus</i>	ESA	Y	VH				VH			VH			VH
Hoary Bat	<i>Lasiurus cinereus</i>	M	N											
Keen's Myotis	<i>Myotis keenii</i>	M	N											
Long-legged Myotis	<i>Myotis volans</i>	M	N											
Moose	<i>Alces americanus</i>	M	Y	H								H		
Mountain Goat	<i>Oreamnos americanus</i>	H, SE ³	Y					H, SE ³				H		H
Mule Deer	<i>Odocoileus hemionus</i>	SE	Y	SE	SE	SE	SE	SE	SE	SE	SE	SE		
North American Wolverine	<i>Gulo gulo luscus</i>	ESA	Y	VH				VH			VH			VH
Northern Bog Lemming	<i>Synaptomys borealis</i>	H	Y	VH							VH			
Pika	<i>Ochotona princeps</i>	M	Y					H					H	H
Pygmy Shrew	<i>Sorex hoyi</i>	M	Y											
Red Tree Vole	<i>Arborimus longicaudus</i>	H	Y										H	H

TRACS: Appendix E

Priority Vertebrates and Socially/Economically Important Vertebrates

Priority Species	Scientific name	Regional Rank ¹	Ecoregional Priority	Ecoregional Priority Ratings ²											
				Canadian Rockies	Columbia Plateau	East Cascades/ Modoc Plateau	Klamath	Middle Rockies/ Blue Mountains	North Cascades	Okanagan	Pacific Northwest Coast	West Cascades			
Red-tailed Chipmunk	<i>Tamias ruficaudus</i>	M	Y	VH											
Ringtail	<i>Bassariscus astutus</i>	M	Y				H								H
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	M	Y			H									
Western Gray Squirrel	<i>Sciurus griseus</i>	M	Y			H									VH
White-footed Vole	<i>Arborimus albipes</i>	H	N												
White-tailed Deer	<i>Odocoileus virginianus</i>	SE	Y	SE											SE
Woodland Caribou	<i>Rangifer tarandus caribou</i>	ESA	Y	VH											
Reptiles															
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	M	Y												H

¹ ESA= Federally listed and candidate species, VH=very high priority, H=high priority, M=moderate priority, SE=Socially & Economically Important Vertebrate.

² VH=very high priority, H=high priority, SE=Socially & Economically Important Vertebrate.

³ The Greater Sage-grouse, Bighorn Sheep, and Mountain Goat ranked as both a Priority Vertebrate and a Socially/Economically Important Vertebrate at the Regional scale and in some ecoregions. When this occurs, the species is considered a Priority Vertebrate Species in tables and databases.

TRACS: Appendix F

Priority Plants

Regional Priority Plants by Ecoregion.

Federally listed and candidate species are identified in **bold**.

Priority Species	Scientific name	Group	Canadian Rockies	Columbian Plateau	East Cascades/Modoc Plateau	Klamath	Middle Rockies/Blue Mountains	North Cascades	Okanagan	Pacific Northwest Coast	West Cascades
Pink Sand Verbena	<i>Abronia umbellata</i> ssp. <i>breviflora</i>	Vascular Plants								X	
Henderson's Ricegrass	<i>Achnatherum hendersonii</i>	Vascular Plants		X							
Wallowa Ricegrass	<i>Achnatherum wallowaensis</i>	Vascular Plants					X				X
Howell's Bentgrass	<i>Agrostis howellii</i>	Vascular Plants			X						
Blue Mountain Onion	<i>Allium dictuon</i>	Vascular Plants					X				
Fungus	<i>Alpova alexsmithii</i>	Fungi			X						X
Moss	<i>Andreaea schofieldiana</i>	Nonvascular Plants				X					
Bog Anemone	<i>Anemone oregana</i> var. <i>felix</i>	Vascular Plants							X		
Hells Canyon Rockcress	<i>Arabis hastatula</i>	Vascular Plants					X				X
Red Mountain Rockcress	<i>Arabis macdonaldiana</i>	Vascular Plants				X					
Sickle-pod Rockcress	<i>Arabis sparsiflora</i> var. <i>atrorubens</i>	Vascular Plants			X						
Crater Lake Rockcress	<i>Arabis suffrutescens</i> var. <i>horizontalis</i>	Vascular Plants			X						
Fungus	<i>Arcangeliiella camphorata</i>	Fungi				X				X	
Hairy Manzanita	<i>Arctostaphylos hispidula</i>	Vascular Plants				X				X	
Marsh Sandwort	<i>Arenaria paludicola</i>	Vascular Plants									
Northern Wormwood	<i>Artemisia campestris</i> var. <i>wormskiolldii</i>	Vascular Plants		X							
Cotton's Milkvetch	<i>Astragalus cottonii</i>	Vascular Plants									X
Blue Mountain Milkvetch	<i>Astragalus tegetarioides</i>	Vascular Plants					X				
Bensoniella	<i>Bensoniella oregana</i>	Vascular Plants									X

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Priority Plants

Priority Species	Scientific name	Group	Canadian Rockies	Columbian Plateau	East Cascades/Modoc Plateau	Klamath	Middle Rockies/Blue Mountains	North Cascades	Okanagan	Pacific Northwest Coast	West Cascades
Oregon Bolandra	<i>Bolandra oregana</i>	Vascular Plants					X				X
Fungus	<i>Boletus pulcherrimus</i>	Fungi			X						
Upward-lobed Moonwort	<i>Botrychium ascendens</i>	Vascular Plants	X				X	X			
Crenulate Moonwort	<i>Botrychium crenulatum</i>	Vascular Plants	X				X		X		
Western Moonwort	<i>Botrychium hesperium</i>	Vascular Plants	X				X				
Narrowleaf Moonwort	<i>Botrychium lineare</i>	Vascular Plants					X		X		
Mountain Moonwort	<i>Botrychium montanum</i>	Vascular Plants			X		X				
Peculiar Moonwort	<i>Botrychium paradoxum</i>	Vascular Plants	X				X		X		
Stalked Moonwort	<i>Botrychium pedunculosum</i>	Vascular Plants	X				X				
Pumice Moonwort	<i>Botrychium pumicola</i>	Vascular Plants			X						
Moss	<i>Brachydontium olympicum</i>	Nonvascular Plants									X
Lichen	<i>Bryoria pseudocapillaris</i>	Lichens								X	
Lichen	<i>Bryoria spiralis</i>	Lichens								X	
Lichen	<i>Bryoria subcana</i>	Lichens								X	
Moss	<i>Bryum calobryoides</i>	Nonvascular Plants							X		X
Brewer's Reedgrass	<i>Calamagrostis breweri</i>	Vascular Plants			X						X
Moss	<i>Calliergon trifarium</i>	Nonvascular Plants			X						
Howell's Mariposa Lily	<i>Calochortus howellii</i>	Vascular Plants				X					
Peck's Mariposa Lily	<i>Calochortus longebarbatus</i> var. <i>peckii</i>	Vascular Plants					X				
Green-band Mariposa Lily	<i>Calochortus macrocarpus</i> var. <i>maculosus</i>	Vascular Plants					X				
Broad-fruit Mariposa Lily	<i>Calochortus nitidus</i>	Vascular Plants					X				
Siskiyou Mariposa Lily	<i>Calochortus persistens</i>	Vascular Plants									
Umpqua Mariposa Lily	<i>Calochortus umpquaensis</i>	Vascular Plants									
Moss	<i>Campylopus schmidii</i>	Nonvascular Plants								X	
Saddle Mountain Bittercress	<i>Cardamine pattersonii</i>	Vascular Plants									X

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Priority Plants

Priority Species	Scientific name	Group	Canadian Rockies	Columbian Plateau	East Cascades/Modoc Plateau	Klamath	Middle Rockies/Blue Mountains	North Cascades	Okanagan	Pacific Northwest Coast	West Cascades
Cordilleran Sedge	<i>Carex cordillerana</i>	Vascular Plants					X				
Idaho Sedge	<i>Carex idaho</i>	Vascular Plants					X				
Sedge	<i>Carex klamathensis</i>	Vascular Plants				X					
Cascade Sedge	<i>Carex scabriuscula</i>	Vascular Plants				X					
Green-tinged Indian Paintbrush	<i>Castilleja chlorotica</i>	Vascular Plants		X							
Fraternal Indian Paintbrush	<i>Castilleja fraterna</i>	Vascular Plants					X				
Purple Alpine Paintbrush	<i>Castilleja rubida</i>	Vascular Plants					X				
Marble Mountain Indian Paintbrush	<i>Castilleja schizotricha</i>	Vascular Plants				X					
Thompson's Pincushion	<i>Chaenactis thompsonii</i>	Vascular Plants		X							
Lichen	<i>Chaenotheca subroscida</i>	Lichens		X							X
Liverwort	<i>Chiloscyphus gemmiparus</i>	Nonvascular Plants		X							X
Fungus	<i>Chroogomphus loculatus</i>	Fungi									X
Mt. Mazama Collomia	<i>Collomia mazama</i>	Vascular Plants		X							X
Cold-water Corydalis	<i>Corydalis caseana</i> ssp. <i>aqueae-gelidae</i>	Vascular Plants									X
Modoc Cypress	<i>Cupressus bakeri</i>	Vascular Plants				X					
Wenatchee Larkspur	<i>Delphinium viridescens</i>	Vascular Plants			X						
Few-flower Bleedingheart	<i>Dicentra pauciflora</i>	Vascular Plants				X					
Southerly Frigid Shootingstar	<i>Dodecatheon austrofrigidum</i>	Vascular Plants								X	
Moss	<i>Encalypta brevipes</i>	Nonvascular Plants									
Oregon Willowherb	<i>Epilobium oregonum</i>	Vascular Plants				X					
Siskiyou Willowherb	<i>Epilobium siskiyouense</i>	Vascular Plants				X					
Siskiyou Daisy	<i>Erigeron cervinus</i>	Vascular Plants				X					
Davis' Fleabane	<i>Erigeron engelmannii</i> var. <i>davisii</i>	Vascular Plants					X				
Howell's Fleabane	<i>Erigeron howellii</i>	Vascular Plants			X						X

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Priority Plants

Priority Species	Scientific name	Group	Canadian Rockies	Columbian Plateau	East Cascades/Modoc Plateau	Klamath	Middle Rockies/Blue Mountains	North Cascades	Okanagan	Pacific Northwest Coast	West Cascades
Oregon Fleabane	<i>Erigeron oreganus</i>	Vascular Plants			X						X
Salish's Daisy	<i>Erigeron salishii</i>	Vascular Plants			X				X		
Lichen	<i>Erioderma sorediatum</i>	Lichens								X	
Umtanum Desert Buckwheat	<i>Eriogonum codium</i>	Vascular Plants									
Green Wild Buckwheat	<i>Eriogonum umbellatum</i> var. <i>glaberrimum</i>	Vascular Plants			X						
Coast Range Fawnlily	<i>Erythronium elegans</i>	Vascular Plants						X			
Howell's Adder's-tongue	<i>Erythronium howellii</i>	Vascular Plants				X					
Quinault Fawnlily	<i>Erythronium quinaultense</i>	Vascular Plants							X		
Gorman's Aster	<i>Eucephalus gormanii</i>	Vascular Plants									X
Gentner's Fritillaria	<i>Fritillaria gentneri</i>	Vascular Plants									X
Warner Mountain Bedstraw	<i>Galium serpenticum</i> ssp. <i>warnense</i>	Vascular Plants			X						
Fungus	<i>Gastroboletus vividus</i>	Fungi				X					X
Alpine Gentian	<i>Gentiana newberryi</i>	Vascular Plants			X						
Bristly Gentian	<i>Gentiana plurisetosa</i>	Vascular Plants				X					
Elegant Gentian	<i>Gentiana setigera</i>	Vascular Plants				X					
Ross' Avens	<i>Geum rossii</i> var. <i>depressum</i>	Vascular Plants			X						
Fungus	<i>Gomphus kauffmannii</i>	Fungi									X
Diffuse Stickseed	<i>Hackelia diffusa</i> var. <i>diffusa</i>	Vascular Plants					X				X
Showy Stickseed	<i>Hackelia venusta</i>	Vascular Plants			X						
Large-flower Rushlily	<i>Hastingsia bracteosa</i> var. <i>atropurpurea</i>	Vascular Plants				X					
Large-flower Rushlily	<i>Hastingsia bracteosa</i> var. <i>bracteosa</i>	Vascular Plants						X			
Fungus	<i>Helvella crassitunicata</i>	Fungi			X						X
Lichen	<i>Heterodermia sitchensis</i>	Lichens									

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Priority Plants

Priority Species	Scientific name	Group	Canadian Rockies	Columbian Plateau	East Cascades/Modoc Plateau	Klamath	Middle Rockies/Blue Mountains	North Cascades	Okanagan	Pacific Northwest Coast	West Cascades
Henderson's Horkelia	<i>Horkelia hendersonii</i>	Vascular Plants				X					
Water Howellia	<i>Howellia aquatilis</i>	Vascular Plants									
Fungus	<i>Hygrophorus caeruleus</i>	Fungi			X						
Lichen	<i>Hypogymnia duplicata</i>	Lichens									X
California Globemallow	<i>Iliamna latibracteata</i>	Vascular Plants				X					X
Long-sepal Globemallow	<i>Iliamna longisepala</i>	Vascular Plants			X						
North Umpqua Kalmiopsis	<i>Kalmiopsis fragrans</i>	Vascular Plants									X
Lichen	<i>Leioderma solediatum</i>	Lichens								X	
Western Lily	<i>Lilium occidentale</i>	Vascular Plants									
Lichen	<i>Lobaria linita</i>	Lichens						X			X
Agate Desert Lomatium	<i>Lomatium cookii</i>	Vascular Plants									
Engelmann Lomatium	<i>Lomatium engelmannii</i>	Vascular Plants				X					
Red-fruited Lomatium	<i>Lomatium erythrocarpum</i>	Vascular Plants					X				
Greenman's Lomatium	<i>Lomatium greenmanii</i>	Vascular Plants					X				
Ochoco Lomatium	<i>Lomatium ochocense</i>	Vascular Plants		X							
Liverwort	<i>Lophozia laxa</i>	Nonvascular Plants									X
Colonial Luina	<i>Luina serpentina</i>	Vascular Plants					X				
Mt. Ashland Lupine	<i>Lupinus aridus ssp. ashlandensis</i>	Vascular Plants				X					
Kincaid's Lupine	<i>Lupinus oregonus var. kincaidii</i>	Vascular Plants				X					
Liverwort	<i>Marsupella emarginata var.</i>	Nonvascular Plants									X
Fungus	<i>Martellia idahoensis</i>	Fungi								X	X
Moss	<i>Meesia uliginosa</i>	Nonvascular Plants				X					
Membrane-leaf Monkeyflower	<i>Mimulus hymenophyllus</i>	Vascular Plants					X				
Stalk-leaved Monkeyflower	<i>Mimulus patulus</i>	Vascular Plants					X				
Macfarlane's Four-o'clock	<i>Mirabilis macfarlanei</i>	Vascular Plants					X				
Lichen	<i>Nephroma occultum</i>	Lichens									X

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Priority Plants

Priority Species	Scientific name	Group	Canadian Rockies	Columbian Plateau	East Cascades/Modoc Plateau	Klamath	Middle Rockies/Blue Mountains	North Cascades	Okanagan	Pacific Northwest Coast	West Cascades
Lichen	<i>Niebla cephalota</i>	Lichens								X	
Fungus	<i>Otidea smithii</i>	Fungi								X	
Giant Polypore Fungus	<i>Oxyporus nobilissimus</i>	Fungi									X
Lichen	<i>Pannaria rubiginosa</i>	Lichens								X	
Mount Rainier Lousewort	<i>Pedicularis rainierensis</i>	Vascular Plants									X
Barrett's Beardtongue	<i>Penstemon barrettiae</i>	Vascular Plants			X						
Hot-rock Penstemon	<i>Penstemon deustus</i> var.	Vascular Plants					X				
Blue-leaved Penstemon	<i>Penstemon glaucinus</i>	Vascular Plants			X						
Peck's Penstemon	<i>Penstemon peckii</i>	Vascular Plants			X						
Red-root Yampah	<i>Perideridia erythrorhiza</i>	Vascular Plants				X					
Siskiyou Phacelia	<i>Phacelia leonis</i>	Vascular Plants				X					
Tiny-flower Phacelia	<i>Phacelia minutissima</i>	Vascular Plants					X				
Fungus	<i>Phaeocollybia gregaria</i>	Fungi								X	
Fungus	<i>Phaeocollybia oregonensis</i>	Fungi								X	X
Lichen	<i>Pilophorus nigricaulis</i>	Lichens									X
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants			X	X	X	X	X	X	X
Rough Popcorn-flower	<i>Plagiobothrys hirtus</i>	Vascular Plants									
Choriso Bog-orchid	<i>Platanthera chorisiana</i>	Vascular Plants						X			
Loose-flower Bluegrass	<i>Poa laxiflora</i>	Vascular Plants								X	
Lichen	<i>Pseudocyphellaria mallota</i>	Lichens									X
Lichen	<i>Pseudocyphellaria rainierensis</i>	Lichens						X			X
Powdery Twig Lichen	<i>Ramalina pollinaria</i>	Lichens									X
Moss	<i>Rhizomnium nudum</i>	Nonvascular Plants									X
Fungus	<i>Rhizopogon elliposporus</i>	Fungi									X
Idaho Gooseberry	<i>Ribes oxycanthoides</i> ssp.	Vascular Plants					X				
Thompson's Mistmaiden	<i>Romanzoffia thompsonii</i>	Vascular Plants									X

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Priority Plants

Priority Species	Scientific name	Group	Canadian Rockies	Columbian Plateau	East Cascades/Modoc Plateau	Klamath	Middle Rockies/Blue Mountains	North Cascades	Okanagan	Pacific Northwest Coast	West Cascades
Barton's Blackberry	<i>Rubus bartonianus</i>	Vascular Plants			X						
Strawberry Saxifrage	<i>Saxifragopsis fragarioides</i>	Vascular Plants			X						
Moss	<i>Schistidium cinclidodonteum</i>	Nonvascular Plants				X					
Luminous Moss	<i>Schistostega pennata</i>	Nonvascular Plants			X			X			X
Bristly-stemmed Checkermallow	<i>Sidalcea hirtipes</i>	Vascular Plants								X	
Spreading Checkermallow	<i>Sidalcea malviflora ssp. patula</i>	Vascular Plants				X				X	
Nelson's Checkermallow	<i>Sidalcea nelsoniana</i>	Vascular Plants									
Oregon Checkermallow	<i>Sidalcea oregana var. calva</i>	Vascular Plants			X						
Seely's Silene	<i>Silene seelyi</i>	Vascular Plants			X						
Spalding's Campion	<i>Silene spaldingii</i>	Vascular Plants					X				
Pale Blue-eyed Grass	<i>Sisyrinchium sarmentosum</i>	Vascular Plants			X						X
Northern Blue-eyed Grass	<i>Sisyrinchium septentrionale</i>	Vascular Plants	X						X		
Western Necklace	<i>Sophora leachiana</i>	Vascular Plants				X					
Ute Ladies'-tresses	<i>Spiranthes diluvialis</i>	Vascular Plants									
Howell's Jewelflower	<i>Streptanthus howellii</i>	Vascular Plants				X					
Oregon Sullivantia	<i>Sullivantia oregana</i>	Vascular Plants			X						X
Cut-leaf Synthyris	<i>Synthyris pinnatifida var. lanuginosa</i>	Vascular Plants								X	
Howell's Tauschia	<i>Tauschia howellii</i>	Vascular Plants				X					
Moss	<i>Tetraphis geniculata</i>	Nonvascular Plants			X			X			X
Lichen	<i>Tholurna dissimilis</i>	Lichens			X						X
Douglas Clover	<i>Trifolium douglasii</i>	Vascular Plants					X				
Thompson's Clover	<i>Trifolium thompsonii</i>	Vascular Plants			X						
Lichen	<i>Usnea longissima</i>	Lichens								X	X
Western Bog Violet	<i>Viola lanceolata ssp. occidentalis</i>	Vascular Plants									

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Socially/Economically/Culturally Important Plants

Regional Socially/Economically/Culturally Important Plants by Ecoregion.

Significance: FS = USFS Management Priority (past, present, or future); SFP = Economically Important Special Forest Product; T = Tribal Importance

Common Name	Scientific Name	Group	Description	Significance	Canadian Rockies	Columbia Plateau	East Cascades/Modoc	Klamath	Middle Rockies/ Blue Mountains	North Cascades	Okanagan	PNW Coast	West Cascades
Noble Fir	<i>Abies procera</i>	Vascular	Holiday wreath plant.	FS,									X
Serviceberry, Saskatoon Berry	<i>Amelanchier alnifolia</i>	Vascular Plants	Fruit. Although widespread, evidently its most significant current use appears to be in the Washington Cascades. Another widespread and highly variable species with numerous scientific and native varieties recognized.	T			X				X		
Oregon Grape	<i>Berberis aquifolium, B. nervosa</i>	Vascular Plants	Greenery plant; harvest is sustainable.	SPF, T				X			X		X
King Bolete	<i>Boletus edulis</i>	Fungi	Edible mushroom commercially collected in the fall.	SPF								X	
Spring King Bolete	<i>Boletus rex-veris</i>	Fungi	Edible mushroom commercially collected in the spring.	SPF			X						
Black Tree Lichen	<i>Bryoria fremontii</i>	Lichens	A traditional staple food of the Columbia Basin tribes including the Umatilla, Walla Walla, and Cayuse tribes.	T		X			X				
Leichtlin's Camas	<i>Camassia leichtlinii</i>	Vascular Plants	Tribal root food. Used by tribes in the Interior Columbia Basin in First Foods Ceremonies.	T									X

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Socially/Economically/Culturally Important Plants

Common Name	Scientific Name	Group	Description	Significance	Canadian Rockies	Columbia Plateau	East Cascades/Modoc	Klamath	Middle Rockies/ Blue Mountains	North Cascades	Okanagan	PNW Coast	West Cascades
Blue Camas, Common Camas	<i>Camassia quamash</i>	Vascular Plants	Tribal root food. Used by tribes in the Interior Columbia Basin in First Foods Ceremonies.	FS, T		X		X	X		X	X	X
Chanterelle	<i>Cantharellus formosus</i> , <i>C. cascadiensis</i> , <i>C. cibarius</i> ?	Fungi	A complex of several species; the common name usually used in North America for chanterelles (<i>Cantharellus cibarius</i>) probably does not refer to any of our species. Very common, harvest is heavy but sustainable.	FS, SFP, T				X			X	X	X
Springbeauty	<i>Claytonia lanceolata</i>	Vascular Plants	Tribal root food. It is the root rather than the leaves that are of tribal significance. Although the species is widespread, its principal use appears to be confined to the Washington Cascades.	T			X	X	X		X		
Hazelnut	<i>Corylus cornuta</i>	Vascular Plants	Nuts; medicinal uses. This species probably receives little use because collecting and processing the nuts is very labor intensive. Not of great cultural significance.	FS, T				X		X	X	X	X
Cascara	<i>Frangula purshiana</i>	Vascular Plants	Formerly called <i>Rhamnus purshiana</i> . Medicinal (laxative) bark plant, fruits sustain band-tailed pigeons. Overharvesting a possibility. NEPA Environmental Assessment performed on Deschutes and Fremont-Winema NFs.	FS, SFP, T									X

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Socially/Economically/Culturally Important Plants

Common Name	Scientific Name	Group	Description	Significance	Canadian Rockies	Columbia Plateau	East Cascades/Modoc	Klamath	Middle Rockies/ Blue Mountains	North Cascades	Okanagan	PNW Coast	West Cascades
Salal	<i>Galtheria shallon</i>	Vascular Plants	Foliage plant, heavily harvested but sustainably; tribal berry food more widely used on the coast.	SPF, T								X	X
Bitterroot	<i>Lewisia rediviva</i>	Vascular Plants	Tribal root food. Used by tribes in the Interior Columbia Basin in First Foods Ceremonies.	T		X	X		X		X		
Canby's Biscuitroot	<i>Lomatium canbyi</i>	Vascular Plants	Tribal root food. Used by tribes in the Interior Columbia Basin in First Foods Ceremonies.	T		X			X		X		
Cous Biscuitroot	<i>Lomatium cous</i>	Vascular	Tribal root food.	T					X				
Gray's Biscuitroot	<i>Lomatium grayi</i>	Vascular Plants	Tribal green, primarily medicinal uses. The shoots are sometimes used as early "celery" and are harvested in early stages of spring growth by Umatilla, Walla Walla and Cayuse tribes. Extremely widespread and variable.	T					X		X		X
Barestem Lomatium	<i>Lomatium nudicaule</i>	Vascular Plants	Tribal green. The young shoots are collected and eaten as "celery," and collected for the First Foods Ceremony. <i>Lomatium dissectum</i> and others are reported to fill this role in other areas.	T		X					X		X

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Socially/Economically/Culturally Important Plants

Common Name	Scientific Name	Group	Description	Significance	Canadian Rockies	Columbia Plateau	East Cascades/ Modoc	Klamath	Middle Rockies/ Blue Mountains	North Cascades	Okanagan	PNW Coast	West Cascades
Morel	<i>Morchella</i> sp.	Fungi	Most of the edible morels collected on forest lands lack correct scientific names, and are better known by their common names: black morel, western blond morel, gray morel. <i>Morchella esculenta</i> (yellow morel) is usually collected at lower elevations off USFS lands.	FS, SFP, T	X		X	X	X	X	X		X
Wokas	<i>Nuphar lutea</i> ssp. <i>polysepala</i>	Vascular Plants	Many medicinal uses, seeds eaten, also a root food. Fruits now used especially in the Klamath.	T								X	X
Yampah/Sa Wikt	<i>Perideridia gairdneri</i>	Vascular Plants	Tribal root food. Used by tribes in the Interior Columbia Basin in First Foods Ceremonies.	T	X			X	X				X
Ipos	<i>Perideridia oregana</i>	Vascular Plants	Tribal root food.	T				X					X
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	Tribal nut food; white pine blister rust a serious threat.	FS, T							X		
Swordfern	<i>Polystichum munitum</i>	Vascular Plants	Greenery plant.	SPF								X	X
Bitter Cherry	<i>Prunus emarginata</i>	Vascular Plants	Tribal fruit, medicine. Limited cultural significance.	T				X	X			X	
Klamath Plum	<i>Prunus subcordata</i>	Vascular Plants	Tribal fruit (principle use is in southern Oregon).	T									
Chokecherry	<i>Prunus virginiana</i>	Vascular Plants	Tribal fruit. Used by tribes in the Interior Columbia Basin in First Foods Ceremonies.	T	X				X	X	X		X

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Socially/Economically/Culturally Important Plants

Common Name	Scientific Name	Group	Description	Significance	Canadian Rockies	Columbia Plateau	East Cascades/Modoc	Klamath	Middle Rockies/ Blue Mountains	North Cascades	Okanagan	PNW Coast	West Cascades
Oregon or Garry Oak & Black Oak	<i>Quercus garryana</i> & <i>Q. kelloggii</i>	Vascular Plants	Nut crop. Historically a staple food anywhere oaks were common; contemporary use among northwestern tribes is uncertain.	T				X					X
Labrador Tea	<i>Rhododendron (Ledum) groenlandicum</i>	Vascular Plants	Medicinal tea.	T								X	
Wapato	<i>Sagittaria latifolia</i> , <i>S. cuneata</i>	Vascular Plants	Root food. Historically a staple food although the traditional use areas are now largely developed; current use is uncertain.	T		X	X						X
Hardstem Bulrush	<i>Schoenoplectus acutus</i>	Vascular Plants	Tribal fiber plant used in mat making.	T	X							X	
Softstem Bulrush	<i>Schoenoplectus tabernaemontani</i>	Vascular Plants	Tribal fiber plant used in mat making.	T							X	X	
Western Red Cedar	<i>Thuja plicata</i>	Vascular Plants	Used for fiber, food, medicine, construction. Historically one of the most important traditional species for coastal tribes, still used for some purposes including cedar root baskets for huckleberry collection.	T				X					X
White Matsutake, Pine Mushroom	<i>Tricholoma magnivelare</i>	Fungi	Scientific name is uncertain and American taxon (white matsutake) may not have a valid name; see <i>Armillaria ponderosa</i> in older literature. Extremely valuable and heavily harvested commercially. NEPA Environmental Assessment performed on Siuslaw NF.	FS, SFP									X

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Socially/Economically/Culturally Important Plants

Common Name	Scientific Name	Group	Description	Significance	Canadian Rockies	Columbia Plateau	East Cascades/Modoc	Klamath	Middle Rockies/ Blue Mountains	North Cascades	Okanagan	PNW Coast	West Cascades
Blue-leaved Huckleberry, Cascade Bilberry	<i>Vaccinium deliciosum</i>	Vascular Plants	Harvested by tribes and public at middle and high elevation.	FS, SFP, T			X			X	X	X	X
Black Huckleberry, Thinleaf Huckleberry	<i>Vaccinium membranaceum</i>	Vascular Plants	Fruit. Very common; most widely harvested western huckleberry. Used by tribes in the interior Columbia Basin in First Foods Ceremonies.	FS, SFP, T	X	X	X	X	X	X			X
Oval-leaf Blueberry	<i>Vaccinium ovalifolium</i>	Vascular Plants	Eaten by many coastal tribes historically and today.	FS, SFP, T			X		X			X	X
California Huckleberry	<i>Vaccinium ovatum</i>	Vascular Plants	Evergreen coastal foliage plant.	SPF, T				X				X	X
Cranberry	<i>Vaccinium oxycoccus</i>	Vascular Plants	An important fruit for coastal tribes.	T								X	X
Red Huckleberry	<i>Vaccinium parvifolium</i>	Vascular Plants	A common coastal huckleberry, widely used by northern coastal tribes.	FS, SFP, T								X	X
Tobacco Root	<i>Valeriana edulis</i>	Vascular Plants	Medicinal and edible root; demand as medicine is high, over-harvesting a possibility, and USFS discourages collection. Medicinal properties extend to other species including <i>V. scouleri</i> and <i>V. sitchensis</i> .	FS, T		X							

TRACS: Appendix G

Socially/Economically/Culturally Important Plants

Common Name	Scientific Name	Group	Description	Significance	East Cascades/Modoc	Klamath	Canadian Rockies	Columbia Plateau	North Cascades	Okanagan	PNW Coast	West Cascades
High-bush Cranberry	<i>Viburnum edule</i>	Vascular Plants	Fruit; may include <i>V. opulus</i> . Appears to be most important to Washington coastal tribes.	T						X		X
Beargrass	<i>Xerophyllum tenax</i>	Vascular Plants	Fiber plant used especially to decorate baskets; now widely harvested for floral arrangements.	FS, SFP, T	X	X						

TRACS: Appendix H

Priority Invertebrates

Regional Priority Invertebrates by Ecoregion.

Federally listed and candidate species are identified in **bold**.

Priority Species	Scientific name	Group	Canadian Rockies	Columbia Plateau	East Cascades/ Modoc Plateau	Klamath	Middle Rockies/ Blue Mountains	North Cascades	Okanagan	Pacific Northwest Coast	West Cascades
Barren Juga	<i>Juga hemphilli hemphilli</i>	Molluscs									X
Basalt Juga	<i>Juga</i> sp. 1	Molluscs			X						
Blind Carabid Beetle	<i>Pterostichus rothi</i>	Insects								X	
Chelan Mountainsnail	<i>Oreohelix</i> sp.1	Molluscs			X						
Columbia Oregonian	<i>Cryptomastix hendersoni</i>	Molluscs			X					X	X
Dalles Sideband	<i>Monadenia fidelis minor</i>	Molluscs			X						
Deschutes Sideband	<i>Monadenia fidelis</i> ssp. 1	Molluscs			X						
Evening Fieldslug	<i>Deroceras hesperium</i>	Molluscs			X					X	X
Franklin's Bumble Bee	<i>Bombus franklini</i>	Insects				X					
Grand Coulee Mountainsnail	<i>Oreohelix junii</i>	Molluscs			X						
Green Sideband	<i>Monadenia fidelis beryllica</i>	Molluscs				X				X	
Hoary Elfin	<i>Callophrys polios maritima</i>	Moths, Butterflies and Skippers								X	
Insular Blue Butterfly	<i>Plebejus saepiolus littoralis</i>	Moths, Butterflies and Skippers								X	
Keeled Jumping-slug	<i>Hemphillia burringtoni</i>	Molluscs								X	
Mardon Skipper	<i>Polites mardon</i>	Moths, Butterflies and Skippers			X	X					X
Oregon Plant Bug	<i>Lygus oregonae</i>	Insects								X	
Oregon	<i>Helminthoglypta</i>	Molluscs				X					X

TRACS: Appendix H

Priority Invertebrates

Priority Species	Scientific name	Group	Canadian Rockies	Columbia Plateau	East Cascades/ Modoc Plateau	Klamath	Middle Rockies/ Blue Mountains	North Cascades	Okanagan	Pacific Northwest Coast	West Cascades
Oregon Silverspot Butterfly	<i>Speyeria zerene hippolyta</i>	Moths, Butterflies and Skippers								X	
Pacific Walker	<i>Pomatiopsis californica</i>	Molluscs								X	
Panther Jumping Slug	<i>Hemphillia pantherina</i>	Molluscs									X
Robust Walker	<i>Pomatiopsis binneyi</i>	Molluscs				X				X	
Siskiyou Chloealtis Grasshopper	<i>Chloealtis aspasma</i>	Insects				X					X
Siskiyou Hesperian	<i>Vespericola sierranus</i>	Molluscs									X
Siskiyou Shoulderband	<i>Monadenia chaceana</i>	Molluscs				X					X
Taylor's Checkerspot Butterfly	<i>Euphydryas editha taylori</i>	Moths, Butterflies and Skippers								X	
Tillamook Westernslug	<i>Hesperarion mariae</i>	Molluscs								X	
Travelling Sideband	<i>Monadenia fidelis celeuthia</i>	Molluscs				X					

TRACS: Appendix I

Priority Habitats

Regional Priority Habitats by Ecoregion.

Habitat	Description	Mapped	Canadian Rockies	Columbia Plateau	East Cascades/ Modoc Plateau	Klamath	Middle Rockies/ Blue Mountains	North Cascades	Okanagan	Pacific Northwest Coast	West Cascades
Aspen	Stands with an aspen component.	Yes			X		X		X		X
Cottonwood Riparian*	Riparian areas with a cottonwood component.	Yes			X		X				
Deciduous Riparian (Willows and Other Shrubs)*	Riparian areas dominated by willows and other deciduous shrubs.	Yes	X	X	X		X		X		X
Dry Meadows	Dry or seasonally dry areas in a permanent or semi-permanent grass/forb condition.	No	X		X		X		X		X
Golden Chinquapin	Stands dominated by Golden Chinquapin.	No								X	
Grassland/Native Bunch Grass*	Lower elevation eastside grasslands.	Yes		X			X		X		
Late-seral High-elevation Fir Forests*	Late-seral, subalpine spruce/fir, Mountain Hemlock, Red Fir.	Yes	X		X		X				X
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	Late-seral forests dominated by Douglas-fir and Western Hemlock, occurs primarily on the west side of the Cascade crest.	Yes								X	
Eastside Late-seral Mixed Conifer	Late-seral forests of mixed conifers (fir, larch, pine)—Rocky Mountain ecological types—primarily east of Cascade crest.	Yes	X		X				X		X
Southeast Late-seral Mixed Conifer	Late-seral forests of mixed conifers (fir, pine)—Mediterranean ecological types—occurs in southern Oregon, Klamath and southern Cascade Mountains.	Yes									X
Late-seral Ponderosa Pine	Late-seral forests on dry sites dominated by Ponderosa Pine, may include Oregon White Oak or Black Oak, primarily east side of Cascade Mountains, but some in the Klamath Mountains.	Yes		X	X						

TRACS: Appendix I

Priority Habitats

Habitat	Description	Mapped	Canadian Rockies	Columbia Plateau	East Cascades/ Modoc Plateau	Klamath	Middle Rockies/ Blue Mountains	North Cascades	Okanagan	Pacific Northwest Coast	West Cascades
Late-seral Tanoak	Late-seral stands dominated by Tanoak – occurs on southern Oregon coast and Klamath Mountains.	Yes								X	
Marshes*	Vegetated areas inundated or saturated for a significant part of the year - vegetation adapted to saturated soil conditions.	Yes							X		
Oak and Pine	All seral stages of forests and woodlands composed of Ponderosa Pine and White Oak or Black Oak.	Yes			X	X					
Olympic Temperate Rainforest	All seral stages of temperate rainforest - Sitka Spruce-Western Hemlock stands along the Hoh River.	No								X	
Port Orford Cedar*	Stands with a Port Orford Cedar component.	Yes								X	
Shrub Steppe*	Sagebrush dominated areas.	Yes		X	X		X		X		
Springs and Seeps*	Places where water issues from the ground naturally.	Yes	X	X	X	X	X	X	X	X	X
Southwest Oregon Mixed Pine*	Stands of mixed pine (Ponderosa, Jeffery, Sugar) occurring in Klamath Mountains.	Yes				X					
Western Redcedar/ Western Hemlock*	All seral stages of Western Redcedar/ Western Hemlock forests.	Yes	X							X	X
Wet Meadows	Wet areas dominated by grass/forb vegetation - inundated or saturated for a significant part of the year - vegetation adapted to saturated soil conditions.	Yes	X		X		X				X

*Priority Habitats crosswalked from TNC Ecological Systems GIS layer; some are not completely mapped across the entire region, but all have RA values. Not used in MARXAN analysis.

TRACS: Appendix J

Canadian Rockies

Canadian Rockies Ecoregional Priorities

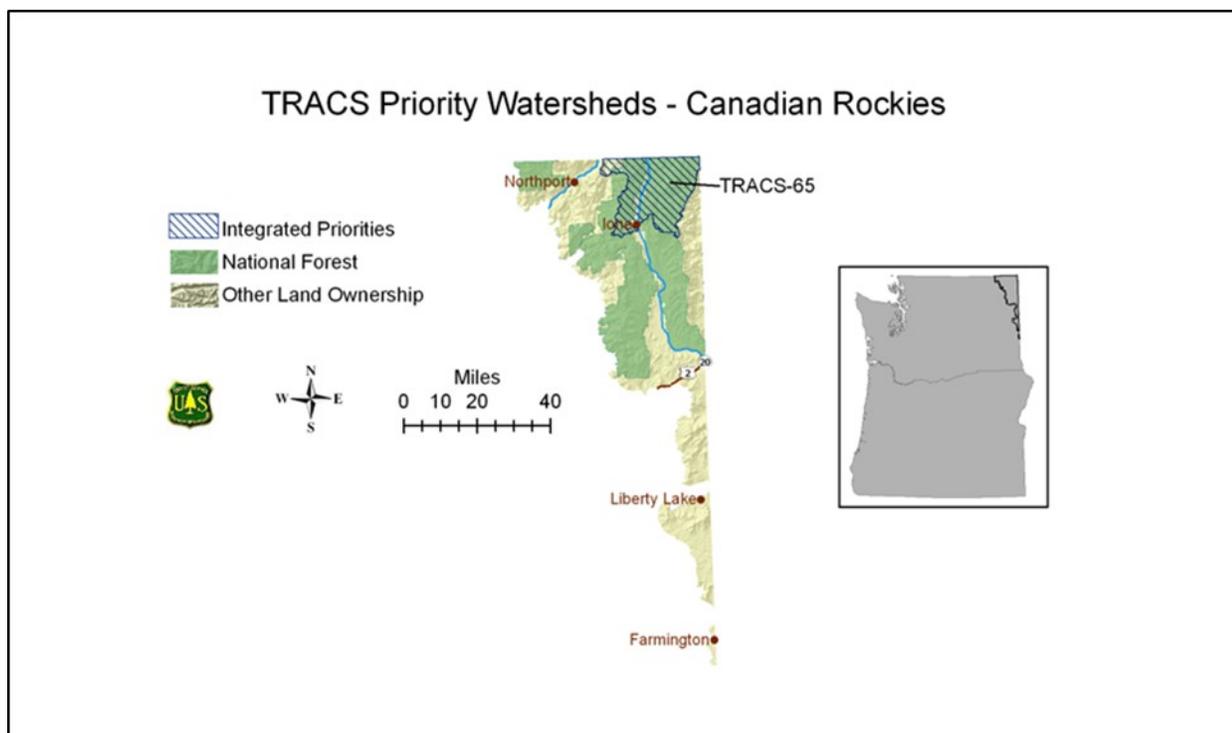
The Canadian Rockies Ecoregion covers the central section of the Rocky Mountains of east-central British Columbia. Within the area addressed by TRACS, it is restricted to the far northeastern corner of Washington State. Additional information about this ecoregion can be found in the Ecoregional Assessment developed by The Nature Conservancy at: http://science.natureconservancy.ca/initiatives/blueprints/canrockies_w.php

Forests: Colville

Management Class	Definition	% of Ecoregion
Preservation	Long-term preservation by Act of Congress	2
Conservation Emphasis	Preservation by Forest Plan land allocation	4
Managed Conservation	Conservation areas with limited management	1
Managed Multiple Objectives	Managed areas with multiple resource objectives	14
Active Management	Active management of multiple resources	13
Recreation Emphasis	Recreation emphasis areas	2
Non-Forest Service	Non-Forest Service lands	64

Priority Watersheds in the Canadian Rockies Ecoregion

Integrated Priorities	Watershed ID
Sullivan Creek-Pend Oreille River	TRACS-65



TRACS: Appendix J

Canadian Rockies

Priority Species in the Canadian Rockies Ecoregion

Federally listed and candidate species are identified in **bold**.

Priority Vertebrates.

Common Name	Scientific name
Brown (Grizzly) Bear	<i>Ursus arctos</i>
Canada Lynx	<i>Lynx canadensis</i>
Gray Wolf	<i>Canis lupus</i>
Moose	<i>Alces americanus</i>
North American Wolverine	<i>Gulo gulo luscus</i>
Northern Bog Lemming	<i>Synaptomys borealis</i>
Pygmy Shrew	<i>Sorex hoyi</i>
Red-tailed Chipmunk	<i>Tamias ruficaudus</i>
Spruce Grouse	<i>Falciennis canadensis</i>
Woodland Caribou	<i>Rangifer tarandus caribou</i>

Priority Socially and Economically Important Vertebrates.

Common Name	Scientific name
Elk	<i>Cervus elaphus</i>
Mule Deer	<i>Odocoileus hemionus</i>
White-tailed Deer	<i>Odocoileus virginianus</i>
Wild Turkey	<i>Meleagris gallopavo</i>

Priority Plants.

Common Name	Scientific Name	Group
Upward-lobed Moonwort	<i>Botrychium ascendens</i>	Vascular Plants
Crenulate Moonwort	<i>Botrychium crenulatum</i>	Vascular Plants
Western Moonwort	<i>Botrychium hesperium</i>	Vascular Plants
Peculiar Moonwort	<i>Botrychium paradoxum</i>	Vascular Plants
Stalked Moonwort	<i>Botrychium pedunculatum</i>	Vascular Plants
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants
Northern Blue-eyed-grass	<i>Sisyrinchium septentrionale</i>	Vascular Plants

Socially/Economically/Culturally Important Plants.

Common Name	Scientific Name ¹	Group	Significance ¹
Barestem Lomatium	<i>Lomatium nudicaule</i>	Vascular Plants	T
Morel	<i>Morchella</i> sp.	Fungi	FS, SFP, T
Yampah/Sa Wikt	<i>Perideridia gairdneri</i>	Vascular Plants	T
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	FS, T
Chokecherry	<i>Prunus virginiana</i>	Vascular Plants	T
Hardstem Bulrush	<i>Schoenoplectus acutus</i>	Vascular Plants	T
Black Huckleberry, Thinleaf Huckleberry	<i>Vaccinium membranaceum</i>	Vascular Plants	FS, SFP, T

¹ FS = USFS Management Priority (past, present, or future); SFP = Economically Important Special Forest Product; T = Tribal Importance

TRACS: Appendix J

Canadian Rockies

Priority Invertebrates

No Priority Invertebrates were identified in this ecoregion.

Priority Habitats in the Canadian Rockies Ecoregion

Deciduous Riparian (Willows and Other Shrubs)
 Dry Meadows
 Eastside Late-seral Mixed Conifer
 Late-seral High-elevation Fir Forests
 Springs and Seeps
 Western Redcedar/Western Hemlock
 Wet Meadows

Priority Watershed Description

Sullivan Creek-Pend Oreille River - TRACS-65—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Socially and Economically Important Vertebrates.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Northern Bog Lemming	<i>Synaptomys borealis</i>	2.34
Woodland Caribou	<i>Rangifer tarandus caribou</i>	2.12
Red-tailed Chipmunk	<i>Neotamias ruficaudus</i>	1.46
Canada Lynx	<i>Lynx canadensis</i>	1.44
North American Wolverine	<i>Gulo gulo luscus</i>	1.31
Spruce Grouse	<i>Falciennis canadensis</i>	1.31
Pygmy Shrew	<i>Sorex hoyi</i>	1.22

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.06
Mule Deer	<i>Odocoileus hemionus</i>	1.00
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	2.71

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

TRACS: Appendix J

Canadian Rockies

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forest	2.33
Eastside Late-seral Mixed Conifer	1.28

TRACS: Appendix K

Columbia Plateau

Columbia Plateau Ecoregional Priorities

The Columbia Plateau is primarily a broad expanse of sagebrush-covered volcanic plains and valleys, with isolated mountain ranges. It includes the Snake, Owyhee, Boise, and Columbia Rivers. The Columbia Plateau stretches across southern Idaho, eastern Washington, and Oregon to the northern Great Basin of Nevada, Utah, and California. Additional information about this ecoregion can be found in the Ecoregional Assessment developed by The Nature Conservancy at:

<http://conserveonline.org/coldocs/2006/01/Columbia%20Plateau%20Final%20Assessment.pdf>

Forests: Columbia River Gorge National Scenic Area, Deschutes, Fremont-Winema, Malheur, Mt. Hood, Ochoco, Okanogan-Wenatchee, Umatilla

Management Class	Definition	% of Ecoregion
Preservation	Long-term preservation by Act of Congress	<1
Conservation Emphasis	Preservation by Forest Plan land allocation	<1
Managed Conservation	Conservation areas with limited management	<1
Managed Multiple Objectives	Managed areas with multiple resource objectives	<1
Active Management	Active management of multiple resources	<1
Recreation Emphasis	Recreation emphasis areas	<1
Non-Forest Service	Non-Forest Service lands	99

Priority Watersheds in the Columbia Plateau Ecoregion

Habitat Conservation and Restoration	Watershed ID
Deep Creek	TRACS-09
Potter Canyon-Deschutes River	TRACS-57
Rock Creek-Buck Creek	TRACS-58
Squaw Creek	TRACS-63
Upper Beaver Creek	TRACS-73
Wall Creek	TRACS-86
Both	Watershed ID
Murderers Creek	TRACS-50
Upper North Fork Crooked River	TRACS-77

TRACS: Appendix K

Columbia Plateau

TRACS Priority Watersheds Columbia Plateau



 Habitat Conservation and Restoration
 National Forest
 Other Land Ownership



Miles
 0 10 20 40



Priority Species in the Columbia Plateau Ecoregion

Priority Vertebrates – Federally listed and candidate species are identified in **bold**.

Common Name	Scientific name
Greater Sage-grouse	<i>Centrocercus urophasianus</i>

Priority Socially and Economically Important Vertebrates

Common Name	Scientific name
Elk	<i>Cervus elaphus</i>
Mule Deer	<i>Odocoileus hemionus</i>
Bighorn Sheep	<i>Ovis canadensis</i>

TRACS: Appendix K

Columbia Plateau

Priority Plants – Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group
Henderson's Ricegrass	<i>Achnatherum hendersonii</i>	Vascular Plants
Northern Wormwood	<i>Artemisia campestris</i> var. <i>wormskioldii</i>	Vascular Plants
Ochoco Lomatium	<i>Lomatium ochocense</i>	Vascular Plants

Socially/Economically/Culturally Important Plants

Common Name	Scientific Name	Group	Significance ¹
Black Tree Lichen	<i>Bryoria fremontii</i>	Lichens	T
Leichtlin's Camas	<i>Camassia leichtlinii</i>	Vascular Plants	T
Blue Camas, Common Camas	<i>Camassia quamash</i>	Vascular Plants	FS, T
Bitterroot	<i>Lewisia rediviva</i>	Vascular Plants	T
Canby's Biscuitroot	<i>Lomatium canbyi</i>	Vascular Plants	T
Barestem Lomatium	<i>Lomatium nudicaule</i>	Vascular Plants	T
Wapato	<i>Sagittaria latifolia</i> , <i>S. cuneata</i>	Vascular Plants	T
Black Huckleberry, Thinleaf Huckleberry	<i>Vaccinium membranaceum</i>	Vascular Plants	FS, SFP, T
Tobacco Root	<i>Valeriana edulis</i>	Vascular Plants	FS, T

¹ FS = USFS Management Priority (past, present, or future); SFP = Economically Important Special Forest Product; T = Tribal Importance

Priority Invertebrates

No Priority Invertebrates were identified in this ecoregion.

Priority Habitats in the Columbia Plateau Ecoregion

- Deciduous Riparian (Willows and Other Shrubs)
- Grassland/Native Bunch Grass
- Late-seral Ponderosa Pine
- Shrub Steppe
- Springs and Seeps

TRACS: Appendix K

Columbia Plateau

Priority Watershed Descriptions

Deep Creek - TRACS-09—Habitat Conservation and Restoration Watershed

This watershed is split between the Columbia Plateau Ecoregion and the Middle Rockies/Blue Mountains Ecoregion.

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

This watershed is also important because it has high RA values for Socially and Economically Important Vertebrates.

Priority Vertebrates – Columbia Plateau

This portion of the watershed is not important for any Priority Vertebrates.

Priority Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Columbia Spotted Frog	<i>Rana luteiventris</i>	3.20*
Upland Sandpiper	<i>Bartramia longicauda</i>	2.45
Boreal Owl	<i>Aegolius funereus</i>	2.30
American Marten	<i>Martes americana</i>	1.81
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.39
Flammulated Owl	<i>Otus flammeolus</i>	1.34
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.34
Northern Goshawk	<i>Accipiter gentilis</i>	1.33
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.29
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.27
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.24
Great Gray Owl	<i>Strix nebulosa</i>	1.18

* RA based on Element Occurrences

Priority Social/Economic Vertebrates – Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	2.24
Mule	<i>Odocoileus hemionus</i>	1.05

Priority Social/Economic Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.21
Mule Deer	<i>Odocoileus hemionus</i>	1.00

TRACS: Appendix K

Columbia Plateau

Priority Plants – Columbia Plateau

This portion of the watershed is not important for any Priority Plants.

Priority Plants – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Group	Relative Abundance
Crenulate Moonwort	<i>Botrychium crenulatum</i>	Vascular Plants	4.87
Peck's Mariposa Lily	<i>Calochortus longebarbatus</i> var. <i>peckii</i>	Vascular Plants	4.74
Mountain Moonwort	<i>Botrychium montanum</i>	Vascular Plants	3.66

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – Columbia Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	5.01
Deciduous Riparian (Willows and Other Shrubs)	2.55

Priority Habitats – Middle Rockies/Blue Mountains

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	1.81
Eastside Late-seral Mixed Conifer	1.60
Cottonwood Riparian	1.28

Murderers Creek - TRACS-50—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is split between the Columbia Plateau Ecoregion and the Middle Rockies/Blue Mountains Ecoregion.

This is a Habitat Conservation and Restoration priority watershed in the Columbia Plateau Ecoregion because it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

This is an Integrated Priorities watershed in the Middle Rockies/Blue Mountains Ecoregion because it meets the following criteria:

- One of the top 30 in the Region for integration of priorities, due to high RA values for Socially and Economically Important Vertebrates and Priority Habitats, moderate RA values for Priority Plants and Priority Vertebrates, and a high biodiversity score.

TRACS: Appendix K

Columbia Plateau

Priority Vertebrates – Columbia Plateau

This portion of the watershed is not important for any Priority Vertebrates.

Priority Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Upland Sandpiper	<i>Bartramia longicauda</i>	2.09
Pika	<i>Ochotona princeps</i>	1.73
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.59
Flammulated Owl	<i>Otus flammeolus</i>	1.53
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.53
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.52
American Marten	<i>Martes americana</i>	1.47
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.44
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.34
Northern Goshawk	<i>Accipiter gentilis</i>	1.23
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.21
Bighorn Sheep	<i>Ovis canadensis</i>	1.16

Priority Social/Economic Vertebrates – Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Bighorn Sheep	<i>Ovis canadensis</i>	2.00
Elk	<i>Cervus canadensis</i>	1.87
Mule Deer	<i>Odocoileus hemionus</i>	1.05

Priority Social/Economic Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.34
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Plants – Columbia Plateau

This portion of the watershed is not important for any Priority Plants.

Priority Plants – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Group	Relative Abundance
Tiny-flower Phacelia	<i>Phacelia minutissima</i>	Vascular Plants	5.08
Colonial Luina	<i>Luina serpentina</i>	Vascular Plants	4.92

TRACS: Appendix K

Columbia Plateau

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – Columbia Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	3.43
Deciduous Riparian (Willows and Other Shrubs)	2.65
Grasslands/Native Bunchgrass	1.66

Priority Habitats – Middle Rockies/Blue Mountains

Priority Habitat	Relative Abundance
Aspen	2.01
Late-seral Ponderosa Pine	1.77
Springs/Seeps	1.64
Late-seral Mixed-Conifer – Eastside	1.61
Deciduous Riparian (Willows and Other Shrubs)	1.02

Potter Canyon-Deschutes River - TRACS-57—Habitat Conservation and Restoration Watershed

This watershed is split between the Columbia Plateau Ecoregion and the East Cascades/Modoc Plateau Ecoregion.

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

Priority Vertebrates – Columbia Plateau

This portion of the watershed is not important for any Priority Vertebrates.

Priority Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	3.66
American Marten	<i>Martes americana</i>	2.06
Bufflehead	<i>Bucephala albeola</i>	1.83
Great Gray Owl	<i>Strix nebulosa</i>	1.64
Flammulated Owl	<i>Otus flammeolus</i>	1.44
Boreal Owl	<i>Aegolius funereus</i>	1.36
Western Gray Squirrel	<i>Sciurus griseus</i>	1.34
Pika	<i>Ochotona princeps</i>	1.33
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.19

TRACS: Appendix K

Columbia Plateau

Priority Social/Economic Vertebrates – Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	2.53
Mule Deer	<i>Odocoileus hemionus</i>	1.02

Priority Social/Economic Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.15
Mule Deer	<i>Odocoileus hemionus</i>	1.02

Priority Plants – Columbia Plateau

This portion of the watershed is not important for any Priority Plants.

Priority Plants - East Cascades/Modoc Plateau

Common Name	Scientific Name	Group	Relative Abundance
Peck's Penstemon	<i>Penstemon peckii</i>	Vascular Plants	3.12

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – Columbia Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	2.94
Deciduous Riparian (Willows and Other Shrubs)	1.08

Priority Habitats – East Cascades/Modoc Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	2.04

Rock Creek-Buck Creek - TRACS-58—Habitat Conservation and Restoration Watershed

This watershed is split between the Columbia Plateau Ecoregion and the East Cascades/Modoc Plateau Ecoregion.

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

TRACS: Appendix K

Columbia Plateau

Priority Vertebrates – Columbia Plateau

This portion of the watershed is not important for any Priority Vertebrates.

Priority Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	2.70
Upland Sandpiper	<i>Bartramia longicauda</i>	2.61
Oregon Spotted Frog	<i>Rana pretiosa</i>	2.12*
Great Gray Owl	<i>Strix nebulosa</i>	1.56
Flammulated Owl	<i>Otus flammeolus</i>	1.48
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.26
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.23

*RA based on Element Occurrences

Priority Social/Economic Vertebrates – Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	2.24
Mule Deer	<i>Odocoileus hemionus</i>	1.05

Priority Social/Economic Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.20
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants

This watershed is not important for any Priority Plants.

Priority Invertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Evening Fieldslug	<i>Deroceras hesperiums</i>	2.02

Priority Invertebrates – Columbia Plateau

This portion of the watershed is not important for any Priority Invertebrates.

TRACS: Appendix K

Columbia Plateau

Priority Habitats – Columbia Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	5.01
Deciduous Riparian (Willows and Other Shrubs)	1.04

Priority Habitats – East Cascades/Modoc Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	1.53
Springs and Seeps	1.34

Squaw Creek- TRACS-63—Habitat Conservation and Restoration Watershed

This watershed is split between the Columbia Plateau Ecoregion and the East Cascades/Modoc Plateau Ecoregion.

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

Priority Vertebrates – Columbia Plateau

This portion of the watershed is not important for any Priority Vertebrates.

Priority Vertebrates – East Cascades/Modoc Plateau - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	3.06
Bufflehead	<i>Bucephala albeola</i>	2.23
American Marten	<i>Martes americana</i>	1.97
Cascades Frog	<i>Rana cascadae</i>	1.80*
Great Gray Owl	<i>Strix nebulosa</i>	1.69
Boreal Owl	<i>Aegolius funereus</i>	1.66
Western Gray Squirrel	<i>Sciurus griseus</i>	1.57
Flammulated Owl	<i>Otus flammeolus</i>	1.45
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.29
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.24
Pika	<i>Ochotona princeps</i>	1.23
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.22
Northern Goshawk	<i>Accipiter gentilis</i>	1.13

*RA based on Element Occurrences

TRACS: Appendix K

Columbia Plateau

Priority Social/Economic Vertebrates – Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	2.57
Mule Deer	<i>Odocoileus hemionus</i>	1.05

Priority Social/Economic Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.05
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants – Columbia Plateau

This portion of the watershed is not important for any Priority Plants.

Priority Plants – East Cascades/Modoc Plateau

Common Name	Scientific Name	Group	Relative Abundance
Peck's Penstemon	<i>Penstemon peckii</i>	Vascular Plants	4.54
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	2.30

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – Columbia Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	3.85
Deciduous Riparian (Willows and Other Shrubs)	1.66

Priority Habitats – East Cascades/Modoc Plateau

Priority Habitat	Relative Abundance
Southeast Late-seral Mixed Conifer	1.77
Late-seral Ponderosa Pine	1.65
Cottonwood Riparian	1.18
Late-seral High-elevation Fir Forest	1.13

TRACS: Appendix K

Columbia Plateau

Upper Beaver Creek- TRACS-73—Habitat Conservation and Restoration Watershed

This watershed is split between the Columbia Plateau Ecoregion and the Middle Rockies/Blue Mountains Ecoregion.

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

This watershed is also important because it has high RA values for Socially and Economically Important Vertebrates.

Priority Vertebrates – Columbia Plateau—Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Greater Sage-grouse	<i>Centrocercus urophasianus</i>	2.10*

*RA based on Element Occurrences

Priority Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Boreal Owl	<i>Aegolius funereus</i>	2.06
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.94
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.37
Flammulated Owl	<i>Otus flammeolus</i>	1.24
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.24
American Marten	<i>Martes americana</i>	1.23
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.02

Priority Social/Economic Vertebrates – Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.70
Mule Deer	<i>Odocoileus hemionus</i>	1.05

Priority Social/Economic Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.22
Mule Deer	<i>Odocoileus hemionus</i>	1.00

TRACS: Appendix K

Columbia Plateau

Priority Plants – Columbia Plateau

Common Name	Scientific Name	Group	Relative Abundance
Henderson's Ricegrass	<i>Achnatherum hendersonii</i>	Vascular Plants	6.70

Priority Plants – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Group	Relative Abundance
Henderson's Ricegrass	<i>Achnatherum henderso-</i>	Vascular Plants	4.99
Crenulate Moonwort	<i>Botrychium crenulatum</i>	Vascular Plants	3.92
Mountain Moonwort	<i>Botrychium montanum</i>	Vascular Plants	3.39

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – Columbia Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	3.62
Deciduous Riparian (Willows and Other Shrubs)	3.04
Shrub Steppe	1.14

Priority Habitats – Middle Rockies/Blue Mountains

Priority Habitat	Relative Abundance
Deciduous Riparian (Willows and Other Shrubs)	1.41

Upper North Fork Crooked River- TRACS-77—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is split between the Columbia Plateau Ecoregion and the Middle Rockies/Blue Mountains Ecoregion.

This is a Habitat Conservation and Restoration watershed in the Columbia Plateau Ecoregion because it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

This is an Integrated Priorities watershed in the Middle Rockies/Blue Mountains Ecoregion because it meets the following criteria:

- One of the top 10 in the Region for Priority Habitats.

TRACS: Appendix K

Columbia Plateau

The watershed is also important because it has high RA values for Socially and Economically Important Vertebrates, and moderate RA values for Priority Vertebrates and Priority Plants.

Priority Vertebrates – Columbia Plateau

This portion of the watershed is not important for any Priority Vertebrates.

Priority Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Columbia Spotted Frog	<i>Rana luteiventris</i>	3.81*
Upland Sandpiper	<i>Bartramia longicauda</i>	2.69
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	2.04
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.51
Great Gray Owl	<i>Strix nebulosa</i>	1.31
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.30
Northern Goshawk	<i>Accipiter gentilis</i>	1.26
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.24
Flammulated Owl	<i>Otus flammeolus</i>	1.23
Boreal Owl	<i>Aegolius funereus</i>	1.10
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.09
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.06

*RA based on Element Occurrences

Priority Social/Economic Vertebrates – Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	2.14
Mule Deer	<i>Odocoileus hemionus</i>	1.04

Priority Social/Economic Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.14
Mule Deer	<i>Odocoileus hemionus</i>	1.00

Priority Plants – Columbia Plateau

This portion of the watershed is not important for any Priority Plants.

TRACS: Appendix K

Columbia Plateau

Priority Plants – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Group	Relative Abundance
Peck's Mariposa Lily	<i>Calochortus longebarbatus</i> var. <i>peckii</i>	Vascular Plants	4.52
Henderson's Ricegrass	<i>Achnatherum hendersonii</i>	Vascular Plants	3.46
Crenulate Moonwort	<i>Botrychium crenulatum</i>	Vascular Plants	2.34

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – Columbia Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	4.95
Deciduous Riparian (Willows and Other Shrubs)	3.63
Springs/Seeps	2.27

Priority Habitats – Middle Rockies/Blue Mountains

Priority Habitat	Relative Abundance
Cottonwood Riparian	2.57
Deciduous Riparian (Willows and Other Shrubs)	2.15
Late-seral Ponderosa Pine	1.78
Late-seral Mixed Conifer - Eastside	1.47
Wet Meadows	1.36
Aspen	1.24
Springs and Seeps	1.21

Wall Creek- TRACS-86—Habitat Conservation and Restoration Watershed

This watershed is split between the Columbia Plateau Ecoregion and the Middle Rockies/Blue Mountains Ecoregion.

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

Priority Vertebrates – Columbia Plateau

This portion of the watershed is not important for any Priority Vertebrates.

TRACS: Appendix K

Columbia Plateau

Priority Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.40
Great Gray Owl	<i>Strix nebulosa</i>	1.39
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.33
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.29
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.28
Flammulated Owl	<i>Otus flammeolus</i>	1.12
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.12
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.04

Priority Social/Economic Vertebrates – Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	2.05
Mule Deer	<i>Odocoileus hemionus</i>	1.05

Priority Social/Economic Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.26
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Plants

This watershed is not important for any Priority Plants.

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – Columbia Plateau

Priority Habitat	Relative Abundance
Deciduous Riparian (Willows and Other Shrubs)	3.49
Late-seral Ponderosa Pine	2.55
Grasslands/Native Bunchgrass	1.95

Priority Habitats – Middle Rockies/Blue Mountains

Priority Habitat	Relative Abundance
Springs and Seeps	2.27
Late-seral Ponderosa Pine	1.31
Cottonwood Riparian USFS	1.26

TRACS: Appendix L

East Cascades/Modoc Plateau

East Cascades/Modoc Plateau Ecoregional Priorities

The East Cascades/Modoc Plateau Ecoregion extends from just east of the Cascade Mountains crest to the warmer, drier high desert to the east. For the purposes of this Strategy, the boundary between the East and West Cascades Ecoregions follows the crest of the Cascades through Washington and Oregon. The East Cascades/Modoc Plateau Ecoregion is a transition zone, extending from the high mountains to the arid interior, with the eastern border following the Ponderosa Pine forest – lowland shrub-steppe/western juniper transition into the Columbia Plateau Ecoregion.

The Modoc Plateau has diverse geography, with portions draining into closed basins such as Goose Lake and Surprise Valley, and most of the remainder draining into the Pitt River, a tributary of the Sacramento River.

Additional information on this ecoregion can be found in the assessment developed by The Nature Conservancy at: http://conserveonline.org/coldocs/2007/08/EW_Cascades_EA_Main%20Report_final_COL.pdf

Forests: Columbia River Gorge National Scenic Area, Deschutes, Fremont-Winema Gifford Pinchot, Mt Baker-Snoqualmie, Mt. Hood, Ochoco, Okanogan-Wenatchee, Rogue River-Siskiyou, Umpqua, Willamette

Management Class	Definition	% of Ecoregion
Preservation	Long-term preservation by Act of Congress	10
Conservation Emphasis	Preservation by Forest Plan land allocation	7
Managed Conservation	Conservation areas with limited management	6
Managed Multiple Objectives	Managed areas with multiple resource objectives	10
Active Management	Active management of multiple resources	17
Recreation Emphasis	Recreation emphasis areas	1
Non-Forest Service	Non-Forest Service lands	49

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Watersheds in the East Cascades/Modoc Plateau Ecoregion

Integrated Priorities	Watershed ID
Browns Creek-Deschutes River	TRACS-04
Crooked Creek	TRACS-07
Deschutes River-Charleton Creek	TRACS-10
Eagle Creek-Columbia River	TRACS-14
East Fork Hood River	TRACS-15
Entiat River	TRACS-20
Icicle Creek	TRACS-31
Little Naches River	TRACS-39
Peshastin Creek	TRACS-55
Sycan River at Sycan Marsh	TRACS-66
Upper Metolius River	TRACS-76
Habitat Conservation and Restoration	Watershed ID
Chiwawa River	TRACS-05
Hog Creek-Williamson River	TRACS-27
Jack Creek-Williamson River	TRACS-33
Little Butte Creek	TRACS-38
Little White Salmon River	TRACS-40
Middle Chewaucan River	TRACS-45
Middle ForkTenaway River-Tenaway River	TRACS-46
Potter Canyon-Deschutes River	TRACS-57
Rock Creek-Buck Creek	TRACS-58
Spencer Creek	TRACS-62
Squaw Creek	TRACS-63
Twentymile Creek	TRACS-70
Upper Sycan River	TRACS-81
Walker Creek	TRACS-85
White Salmon River	TRACS-90
Willow Creek-Frontal Goose Lake	TRACS-91
Both	Watershed ID
Deep Creek	TRACS-08
Eightmile Creek	TRACS-17
Fifteenmile Creek	TRACS-21
Fourmile Creek	TRACS-22
Honey Creek	TRACS-28
Mad River	TRACS-44
Tygh Creek	TRACS-71
White River	TRACS-89

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Species in the East Cascades/Modoc Plateau Ecoregion

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific name
American Marten	<i>Martes americana</i>
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>
Boreal Owl	<i>Aegolius funereus</i>
Bufflehead	<i>Bucephala albeola</i>
Canada Lynx	<i>Lynx canadensis</i>
Cascades Frog	<i>Rana cascadae</i>
Columbia Spotted Frog	<i>Ascaphus truei</i>
Fisher	<i>Martes pennanti</i>
Flammulated Owl	<i>Otus flammeolus</i>
Gray Wolf	<i>Canis lupus</i>
Great Gray Owl	<i>Strix nebulosa</i>
Greater Sage-grouse	<i>Centrocercus urophasianus</i>
Harlequin Duck	<i>Histrionicus histrionicus</i>
Larch Mountain Salamander	<i>Plethodon larselli</i>
Mountain Goat	<i>Oreamnos americanus</i>
North American Wolverine	<i>Gulo gulo luscus</i>
Northern Goshawk	<i>Accipiter gentilis</i>
Northern Spotted Owl	<i>Strix occidentalis caurina</i>
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>
Oregon Spotted Frog	<i>Rana pretiosa</i>
Pika	<i>Ochotona princeps</i>
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>
Silver-haired Bat	<i>Lasionycteris noctivagans</i>
Spruce Grouse	<i>Falcapennis canadensis</i>
Upland Sandpiper	<i>Bartramia longicauda</i>
Western Gray Squirrel	<i>Sciurus griseus</i>
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>

Priority Socially and Economically Important Vertebrates

Common Name	Scientific name
American Beaver	<i>Castor canadensis</i>
Bighorn Sheep	<i>Ovis canadensis</i>
Elk	<i>Cervus elaphus</i>
Mule Deer	<i>Odocoileus hemionus</i>
Wild Turkey	<i>Meleagris gallopavo</i>

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Plants – Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group
Howell's Bentgrass	<i>Agrostis howellii</i>	Vascular Plants
Fungus	<i>Alpova alexsmithii</i>	Fungi
Sickle-pod Rockcress	<i>Arabis sparsiflora</i> var. <i>atorubens</i>	Vascular Plants
Crater Lake Rockcress	<i>Arabis suffrutescens</i> var. <i>horizontalis</i>	Vascular Plants
Fungus	<i>Boletus pulcherrimus</i>	Fungi
Mountain Moonwort	<i>Botrychium montanum</i>	Vascular Plants
Pumice Moonwort	<i>Botrychium pumicola</i>	Vascular Plants
Brewer's Reedgrass	<i>Calamagrostis breweri</i>	Vascular Plants
Moss	<i>Calliergon trifarium</i>	Nonvascular Plants
Green-tinged Indian-paintbrush	<i>Castilleja chlorotica</i>	Vascular Plants
Thompson's Pincushion	<i>Chaenactis thompsonii</i>	Vascular Plants
Lichen	<i>Chaenotheca subroscida</i>	Lichens
Liverwort	<i>Chiloscyphus gemmiparus</i>	Nonvascular Plants
Mt. Mazama Collomia	<i>Collomia mazama</i>	Vascular Plants
Wenatchee Larkspur	<i>Delphinium viridescens</i>	Vascular Plants
Howell's Fleabane	<i>Erigeron howellii</i>	Vascular Plants
Oregon Fleabane	<i>Erigeron oregonus</i>	Vascular Plants
Salish's Daisy	<i>Erigeron salishii</i>	Vascular Plants
Green Wild Buckwheat	<i>Eriogonum umbellatum</i> var. <i>glaberrimum</i>	Vascular Plants
Warner Mountain Bedstraw	<i>Galium serpticum</i> ssp. <i>warnerense</i>	Vascular Plants
Alpine Gentian	<i>Gentiana newberryi</i>	Vascular Plants
Ross' Avens	<i>Geum rossii</i> var. <i>depressum</i>	Vascular Plants
Showy Stickseed	<i>Hackelia venusta</i>	Vascular Plants
Fungus	<i>Helvella crassitunicata</i>	Fungi
Fungus	<i>Hygrophorus caeruleus</i>	Fungi
Long-sepal Globemallow	<i>Iliamna longisepala</i>	Vascular Plants
Barrett's Beardtongue	<i>Penstemon barrettiae</i>	Vascular Plants
Blue-leaved Penstemon	<i>Penstemon glaucinus</i>	Vascular Plants
Peck's Penstemon	<i>Penstemon peckii</i>	Vascular Plants
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants
Strawberry Saxifrage	<i>Saxifragopsis fragarioides</i>	Vascular Plants
Luminous Moss	<i>Schistostega pennata</i>	Nonvascular Plants
Oregon Checkermallow	<i>Sidalcea oregana</i> var. <i>calva</i>	Vascular Plants
Seely's Silene	<i>Silene seelyi</i>	Vascular Plants
Pale Blue-eyed-grass	<i>Sisyrinchium sarmentosum</i>	Vascular Plants
Oregon Sullivantia	<i>Sullivantia oregana</i>	Vascular Plants
Moss	<i>Tetraphis geniculata</i>	Nonvascular Plants
Lichen	<i>Tholurna dissimilis</i>	Lichens
Thompson's Clover	<i>Trifolium thompsonii</i>	Vascular Plants

TRACS: Appendix L

East Cascades/Modoc Plateau

Socially/Economically/Culturally Important Plants

Common Name	Scientific Name	Group	Significance ¹
Noble Fir	<i>Abies procera</i>	Vascular Plants	FS, SFP
Serviceberry, Saskatoon Berry	<i>Amelanchier alnifolia</i>	Vascular Plants	T
Spring King Bolete	<i>Boletus rex-veris</i>	Fungi	SPF
Springbeauty	<i>Claytonia lanceolata</i>	Vascular Plants	T
Bitterroot	<i>Lewisia rediviva</i>	Vascular Plants	T
Barestem Lomatium	<i>Lomatium nudicaule</i>	Vascular Plants	T
Morel	<i>Morchella</i> sp.	Fungi	FS, SFP, T
Chokecherry	<i>Prunus virginiana</i>	Vascular Plants	T
Wapato	<i>Sagittaria latifolia</i> , <i>S. cuneata</i>	Vascular Plants	T
Hardstem Bulrush	<i>Schoenoplectus acutus</i>	Vascular Plants	T
White Matsutake, Pine Mushroom	<i>Tricholoma magnivelare</i>	Fungi	FS, SFP
Blue-leaved Huckleberry, Cascade Bilberry	<i>Vaccinium deliciosum</i>	Vascular Plants	FS, SFP, T
Black Huckleberry, Thinleaf Huckleberry	<i>Vaccinium membranaceum</i>	Vascular Plants	FS, SFP, T
Oval-leaf Blueberry	<i>Vaccinium ovalifolium</i>	Vascular Plants	FS, SFP, T
Beargrass	<i>Xerophyllum tenax</i>	Vascular Plants	FS, SFP, T

¹ FS = USFS Management Priority (past, present, or future); SFP = Economically Important Special Forest Product; T = Tribal Importance

Priority Invertebrates

Common Name	Scientific Name	Group
Basalt Juga	<i>Juga</i> sp. 1	Molluscs
Chelan Mountainsnail	<i>Oreohelix</i> sp. 1	Molluscs
Columbia Oregonian	<i>Cryptomastix hendersoni</i>	Molluscs
Dalles Sideband	<i>Monadenia fidelis minor</i>	Molluscs
Deschutes Sideband	<i>Monadenia fidelis</i> ssp. 1	Molluscs
Evening Fieldslug	<i>Deroceras hesperium</i>	Molluscs
Grand Coulee Mountainsnail	<i>Oreohelix junii</i>	Molluscs
Mardon Skipper	<i>Polites mardon</i>	Moths, Butterflies and Skippers

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Habitats in the East Cascades/Modoc Plateau Ecoregion

Aspen
Cottonwood Riparian
Deciduous Riparian (Willows and Other Shrubs)
Dry Meadows
Eastside Late-seral Mixed Conifer
Late-seral High-elevation Fir Forests
Late-seral Ponderosa Pine
Oak and Pine
Shrub Steppe
Southeast Late-seral Mixed Conifer
Springs and Seeps
Wet Meadows

Priority Watershed Descriptions

Browns Creek-Deschutes River - TRACS-04—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Vertebrates.

The watershed is also important because it has moderately high RA values for Socially and Economically Important Vertebrates and Priority Plants.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	3.71
Fisher	<i>Martes pennanti</i>	2.98
Oregon Spotted Frog	<i>Rana pretiosa</i>	2.89
Bufflehead	<i>Bucephala albeola</i>	2.38
Cascades Frog	<i>Rana cascadae</i>	2.29
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.84
Western Gray Squirrel	<i>Sciurus griseus</i>	1.83
Great Gray Owl	<i>Strix nebulosa</i>	1.82
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.82
Boreal Owl	<i>Aegolius funereus</i>	1.71
American Marten	<i>Martes americana</i>	1.62
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.60
Flammulated Owl	<i>Otus flammeolus</i>	1.51
Northern Goshawk	<i>Accipiter gentilis</i>	1.50
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.34
Pika	<i>Ochotona princeps</i>	1.06

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.09
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Luminous Moss	<i>Schistostega pennata</i>	Nonvascular Plants	3.98
Lichen	<i>Chaenotheca subroscida</i>	Fungi	3.10

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Southeast Late-seral Mixed Conifer	2.14
Late-seral High-elevation Fir Forests	2.10
Wet Meadows	1.03

Chiwawa River - TRACS-05—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Eastside Late-seral Mixed-conifer habitat.

The watershed is also important because it has high RA values for Priority Vertebrates and Socially and Economically Important Vertebrates, and moderately high RA values for Priority Plants and Habitats.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Canada Lynx	<i>Lynx canadensis</i>	3.76
Mountain Goat	<i>Oreamnos americanus</i>	2.75
Spruce Grouse	<i>Falcapennis canadensis</i>	2.48
North American Wolverine	<i>Gulo gulo luscus</i>	2.43
Harlequin Duck	<i>Histrionicus histrionicus</i>	2.07
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.88
Boreal Owl	<i>Aegolius funereus</i>	1.86
Cascades Frog	<i>Rana cascadae</i>	1.74
Northern Goshawk	<i>Accipiter gentilis</i>	1.66
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.46
Pika	<i>Ochotona princeps</i>	1.28
American Marten	<i>Martes americana</i>	1.17
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.04

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	2.35
Long-sepal Globemallow	<i>Iliamna longisepala</i>	Vascular Plants	2.16

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Eastside Late-seral Mixed Conifer	2.37
Late-seral High-elevation Fir Forests	1.96
Deciduous Riparian (Willows and Other Shrubs)	1.81
Cottonwood Riparian	1.53
Aspen	1.46

Crooked Creek - TRACS-07—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 30 in the Region for integration of priorities, due to high RA values for Socially and Economically Important Vertebrates and Priority Habitats, a moderately high RA value for Priority Plants, and a high biodiversity score.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Great Gray Owl	<i>Strix nebulosa</i>	1.61
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.48
Flammulated Owl	<i>Otus flammeolus</i>	1.24
Pika	<i>Ochotona princeps</i>	1.24
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.10

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Bighorn Sheep	<i>Ovis canadensis</i>	2.21
Elk	<i>Cervus canadensis</i>	1.07
Mule Deer	<i>Odocoileus hemionus</i>	1.02
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Warner Mountain Bedstraw	<i>Galium serpenticum</i> ssp. <i>warnerense</i>	Vascular Plants	6.01
Blue-leaved Penstemon	<i>Penstemon glaucinus</i>	Vascular Plants	3.49

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Springs and Seeps	2.60
Aspen	2.26
Southeast Late-seral Mixed Conifer	2.16
Late-seral Ponderosa Pine	1.88
Cottonwood Riparian	1.22

Deep Creek - TRACS-08—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Southeast Late-seral Mixed-conifer habitat and one of the top 12 for Aspen habitat.
- One of the top 10 in the Region for Priority Habitats.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.69
Great Gray Owl	<i>Strix nebulosa</i>	1.65
Flammulated Owl	<i>Otus flammeolus</i>	1.32
Pika	<i>Ochotona princeps</i>	1.22
Silver-haired Bat	<i>Lasiorycteris noctivagans</i>	1.15
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.10

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.15
Mule Deer	<i>Odocoileus hemionus</i>	1.02
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Warner Mountain Bedstraw	<i>Galium serpenticum</i> ssp. <i>warnerense</i>	Vascular Plants	4.03

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Aspen	3.45
Southeast Late-seral Mixed Conifer	2.90
Springs and Seeps	2.53
Wet Meadows	2.04
Deciduous Riparian (Willows and Other Shrubs)	1.61
Late-seral Ponderosa Pine	1.52
Cottonwood Riparian	1.46

Deschutes River-Charleton Creek - TRACS-10—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 30 in the Region for integration of priorities due to high RA values for Priority Plants and Priority Vertebrates, moderately high RA values for Socially and Economically Important Vertebrates and Priority Habitats, and a high biodiversity score.

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	3.82
Fisher	<i>Martes pennanti</i>	3.10
Bufflehead	<i>Bucephala albeola</i>	2.29
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.98
Western Gray Squirrel	<i>Sciurus griseus</i>	1.98
Great Gray Owl	<i>Strix nebulosa</i>	1.96
Boreal Owl	<i>Aegolius funereus</i>	1.86
Oregon Spotted Frog	<i>Rana pretiosa</i>	1.79
Cascades Frog	<i>Rana cascadae</i>	1.77
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.77
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.67
Northern Goshawk	<i>Accipiter gentilis</i>	1.64
American Marten	<i>Martes americana</i>	1.59
Flammulated Owl	<i>Otus flammeolus</i>	1.54
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.45
Pika	<i>Ochotona princeps</i>	1.20

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.09
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Liverwort	<i>Chiloscyphus gemmiparus</i>	Nonvascular Plants	5.36
Fungus	<i>Alpova alexsmithii</i>	Fungi	4.67
Alpine Gentian	<i>Gentiana newberryi</i>	Vascular Plants	2.37
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	1.45

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forests	2.33
Southeast Late-seral Mixed Conifer	2.18
Springs/Seeps	1.44
Deciduous Riparian (Willows and Other Shrubs)	1.20
Wet Meadows	1.18

Eagle Creek-Columbia River - TRACS-14—Integrated Priorities Watershed

This watershed is assigned to the East Cascades/Modoc Plateau Ecoregion, but probably should have been assigned to the West Cascades Ecoregion. The watershed is in a transition zone between east and west Cascades ecosystems. For this reason Priority Species and Habitats in this Integrated Priority Watershed are listed for both ecoregions.

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for biodiversity.
- One of the top 30 in the Region for integration of priorities, due to a high RA value for Priority Vertebrates and a moderately high RA value Priority Plants.

Priority Vertebrates – East Cascades/Modoc Plateau - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	3.53
Larch Mountain Salamander	<i>Plethodon larselli</i>	3.31
Western Gray Squirrel	<i>Sciurus griseus</i>	1.90
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.89
Great Gray Owl	<i>Strix nebulosa</i>	1.83
Northern Goshawk	<i>Accipiter gentilis</i>	1.55
Cascades Frog	<i>Rana cascadae</i>	1.54
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.44
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.39
North American Wolverine	<i>Gulo gulo luscus</i>	1.37
Flammulated Owl	<i>Otus flammeolus</i>	1.30
Oregon Spotted Frog	<i>Rana pretiosa</i>	1.26
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.26
Pika	<i>Ochotona princeps</i>	1.13

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Vertebrates – West Cascades - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Oregon Spotted Frog	<i>Rana pretiosa</i>	3.39
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	3.26
Larch Mountain Salamander	<i>Plethodon larselli</i>	2.30
Cascade Torrent Salamander	<i>Rhyacotriton cascadae</i>	1.70
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	1.67
Pika	<i>Ochotona princeps</i>	1.30
Northern Goshawk	<i>Accipiter gentilis</i>	1.28
Cascades Frog	<i>Rana cascadae</i>	1.16
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.12

Priority Social/Economic Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.10

Priority Social/Economic Vertebrates – West Cascades

Common Name	Scientific Name	Relative Abundance
Black-tailed Deer	<i>Odocoileus hemionus columbianus</i>	1.37
Elk	<i>Cervus canadensis</i>	1.04

Priority Plants – East Cascades/Modoc Plateau

Common Name	Scientific Name	Group	Relative Abundance
Lichen	<i>Chaenotheca subroscida</i>	Fungi	3.93

Priority Plants – West Cascades

Common Name	Scientific Name	Group	Relative Abundance
Howells Fleabane	<i>Erigeron howellii</i>	Fungi	4.16
Cold-water Corydalis	<i>Corydalis caseana ssp. aquae-gelidae</i>	Vascular Plants	3.05

Priority Invertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Columbia Oregonian	<i>Cryptomastix hendersoni</i>	5.16

Priority Invertebrates – West Cascades

This portion of the watershed is not important for any Priority Invertebrates.

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Habitats – East Cascades/Modoc Plateau

Priority Habitat	Relative Abundance
Deciduous Riparian (Willows and Other Shrubs)	1.63
Springs/Seeps	1.61
Cottonwood Riparian	1.36

Priority Habitats – West Cascades

Priority Habitat	Relative Abundance
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	1.73

East Fork Hood River - TRACS-15—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Vertebrates.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Priority Plants, Priority Vertebrates and Priority Habitats, and a moderately high RA value for Socially and Economically Important Vertebrates.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	3.77
Fisher	<i>Martes pennanti</i>	2.99
Larch Mountain Salamander	<i>Plethodon larselli</i>	2.84
Bufflehead	<i>Bucephala albeola</i>	2.06
Western Gray Squirrel	<i>Sciurus griseus</i>	2.04
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.89
Great Gray Owl	<i>Strix nebulosa</i>	1.78
Cascades Frog	<i>Rana cascadae</i>	1.69
Boreal Owl	<i>Aegolius funereus</i>	1.61
Northern Goshawk	<i>Accipiter gentilis</i>	1.61
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.58
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.55
Flammulated Owl	<i>Otus flammeolus</i>	1.52
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.20
American Marten	<i>Martes americana</i>	1.15
Pika	<i>Ochotona princeps</i>	1.11

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.12
Mule Deer	<i>Odocoileus hemionus</i>	1.02
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Brewer's Reedgrass	<i>Calamagrostis breweri</i>	Vascular Plants	5.57
Sickle-pod Rockcress	<i>Arabis sparsiflora</i> var. <i>atorubens</i>	Vascular Plants	4.86
Fungus	<i>Hygrophorus caeruleus</i>	Fungi	4.75
Luminous Moss	<i>Schistostega pennata</i>	Nonvascular Plants	4.24
Lichen	<i>Chaenotheca subroscida</i>	Fungi	3.37
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	1.75

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Columbia Oregonian	<i>Cryptomastix hendersoni</i>	3.90
Dallas Sideband	<i>Monadenia fidelis minor</i>	2.42

Priority Habitats

Priority Habitat	Relative Abundance
Deciduous Riparian (Willows and Other Shrubs)	2.37
Cottonwood Riparian	2.10
Late-seral High-elevation Fir Forests	1.56
Springs and Seeps	1.52

Eightmile Creek - TRACS-17—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top six in the Region for Oak and Pine habitat.
- One of the top 10 in the Region for Priority Habitats.

This watershed is also important because it has high RA values for Priority Vertebrates, moderately high RA values for Socially and Economically Important Vertebrates, and a moderately high biodiversity score.

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	3.21
Fisher	<i>Martes pennanti</i>	2.44
Bufflehead	<i>Bucephala albeola</i>	1.91
Cascades Frog	<i>Rana cascadae</i>	1.72
Western Gray Squirrel	<i>Sciurus griseus</i>	1.44
Boreal Owl	<i>Aegolius funereus</i>	1.30
Great Gray Owl	<i>Strix nebulosa</i>	1.16
Flammulated Owl	<i>Otus flammeolus</i>	1.08
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.02

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Sickle-pod Rockcress	<i>Arabis sparsiflora</i> var. <i>atrorubens</i>	Vascular Plants	4.58

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Dallas Sideband	<i>Monadenia fidelis minor</i>	5.26

Priority Habitats

Priority Habitat	Relative Abundance
Oak and Pine	3.56
Deciduous Riparian (Willows and Other Shrubs)	2.22
Cottonwood Riparian	1.96
Eastside Late-seral Mixed Conifer	1.53
Late-seral Ponderosa Pine	1.38
Shrub Steppe	1.20

TRACS: Appendix L

East Cascades/Modoc Plateau

Entiat River - TRACS-20—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Socially and Economically Important Vertebrates

This watershed is also important because it has moderately high RA values for Priority Plants, Priority Habitats and Priority Vertebrates.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Canada Lynx	<i>Lynx canadensis</i>	3.36
Spruce Grouse	<i>Falcapennis canadensis</i>	2.15
North American Wolverine	<i>Gulo gulo luscus</i>	2.02
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.70
Cascades Frog	<i>Rana cascadae</i>	1.40
Boreal Owl	<i>Aegolius funereus</i>	1.33
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.29
Pika	<i>Ochotona princeps</i>	1.29
Northern Goshawk	<i>Accipiter gentilis</i>	1.16
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.05

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Bighorn Sheep	<i>Ovis canadensis</i>	2.91
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Thompson's Clover	<i>Trifolium thompsonii</i>	Vascular Plants	3.66
Long-sepal Globemallow	<i>Iliamna longisepala</i>	Vascular Plants	3.33
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	2.06

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Chelan Mountainsnail	<i>Oreohelix sp.1</i>	4.27

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Habitats

Priority Habitat	Relative Abundance
Shrub Steppe	1.96
Late-seral High-elevation Fir Forests	1.93
Eastside Late-seral Mixed Conifer	1.17
Springs and Seeps	1.16

Fifteenmile Creek - TRACS-21—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top six in the Region for Oak and Pine habitat.
- One of the top 10 in the Region for Priority Habitats.
- One of the top 30 in the Region for integration of priorities, due to a high RA value for Socially and Economically Important Vertebrates, moderately high RA values for Priority Plants and Priority Habitats, and a moderately high biodiversity score.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	2.96
Oregon Spotted Frog	<i>Rana pretiosa</i>	2.56
Bufflehead	<i>Bucephala albeola</i>	1.68
Western Gray Squirrel	<i>Sciurus griseus</i>	1.37
Cascades Frog	<i>Rana cascadae</i>	1.23
Boreal Owl	<i>Aegolius funereus</i>	1.08

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Luminous Moss	<i>Schistostega pennata</i>	Nonvascular Plants	5.04

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Dallas Sideband	<i>Monadenia fidelis minor</i>	3.83

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Habitats

Priority Habitat	Relative Abundance
Oak and Pine	3.66
Deciduous Riparian (Willows and Other Shrubs)	2.38
Cottonwood Riparian	2.12
Shrub Steppe	1.34
Eastside Late-seral Mixed Conifer	1.17

Fourmile Creek - TRACS-22—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Southeast Late-seral Mixed-conifer habitat.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Priority Plants and Priority Vertebrates, moderately high RA values for Socially and Economically Important Vertebrates and Priority Habitats, and a moderately high biodiversity score.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Fisher	<i>Martes pennanti</i>	3.12
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	2.17
Western Gray Squirrel	<i>Sciurus griseus</i>	2.11
Great Gray Owl	<i>Strix nebulosa</i>	1.95
Northern Goshawk	<i>Accipiter gentilis</i>	1.82
American Marten	<i>Martes americana</i>	1.76
Silver-haired Bat	<i>Lasiurus noctivagans</i>	1.71
Flammulated Owl	<i>Otus flammeolus</i>	1.70
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.54
Pika	<i>Ochotona princeps</i>	1.21
Cascades Frog	<i>Rana cascadae</i>	1.13

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.16
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Mt. Mazama Collomia	<i>Collomia mazama</i>	Vascular Plants	5.34
Lichen	<i>Chaenotheca subroscida</i>	Fungi	4.37
Crater Lake Rockcress	<i>Arabis suffrutescens</i> var. <i>horizontalis</i>	Vascular Plants	4.32
Alpine Gentian	<i>Gentiana newberryi</i>	Vascular Plants	4.26
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	1.51

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Evening Fieldslug	<i>Deroceras hesperium</i>	2.73

Priority Habitats

Priority Habitat	Relative Abundance
Southeast Late-seral Mixed Conifer	3.48
Late-seral High-elevation Fir Forests	2.49
Deciduous Riparian (Willows and Other Shrubs)	1.88

Hog Creek-Williamson River - TRACS-27—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 12 in the Region for Aspen habitat.

The watershed is also important because it has high RA values for Priority Habitats, a high biodiversity score, and moderately high RA values for Socially and Economically Important Vertebrates and Priority Vertebrates.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Fisher	<i>Martes pennanti</i>	2.46
Bufflehead	<i>Bucephala albeola</i>	2.09
Western Gray Squirrel	<i>Sciurus griseus</i>	1.59
Great Gray Owl	<i>Strix nebulosa</i>	1.52
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.51
American Marten	<i>Martes americana</i>	1.48
Flammulated Owl	<i>Otus flammeolus</i>	1.36
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.18
Pika	<i>Ochotona princeps</i>	1.06
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.04

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.18
Mule Deer	<i>Odocoileus hemionus</i>	1.02
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants

This watershed is not important for any Priority Plants.

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Evening Fieldslug	<i>Deroceras hesperium</i>	3.45

Priority Habitats

Priority Habitat	Relative Abundance
Aspen	2.92
Wet Meadows	2.21
Southeast Late-seral Mixed Conifer	2.12
Late-seral Ponderosa Pine	1.84
Springs and Seeps	1.10
Cottonwood Riparian	1.07

Honey Creek - TRACS-28—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 12 in the Region for Aspen habitat.
- One of the top 10 in the Region for Priority Habitats.

This watershed is also important because it has high RA values for Socially and Economically Important Vertebrates and moderately high RA values for Priority Plants.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Great Gray Owl	<i>Strix nebulosa</i>	1.63
Flammulated Owl	<i>Otus flammeolus</i>	1.42
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.24
Pika	<i>Ochotona princeps</i>	1.23
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.22
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.09

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Bighorn Sheep	<i>Ovis canadensis</i>	2.13
Elk	<i>Cervus canadensis</i>	1.13
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Warner Mountain Bedstraw	<i>Galium serpticum ssp. warnerense</i>	Vascular Plants	6.25
Blue-leaved Penstemon	<i>Penstemon glaucinus</i>	Vascular Plants	3.37
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	1.62

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Aspen	3.01
Southeast Late-seral Mixed Conifer	2.66
Springs and Seeps	2.37
Late-seral Ponderosa Pine	1.71
Deciduous Riparian (Willows and Other Shrubs)	1.37
Cottonwood Riparian	1.31

Icicle Creek - TRACS-31—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Plants and Socially and Economically Important Vertebrates.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Priority Plants, Priority Vertebrates, and Socially and Economically Important Vertebrates, and a moderately high biodiversity score.

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Mountain Goat	<i>Oreamnos americanus</i>	2.91
North American Wolverine	<i>Gulo gulo luscus</i>	2.35
Spruce Grouse	<i>Falciipennis canadensis</i>	2.35
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.91
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.72
Boreal Owl	<i>Aegolius funereus</i>	1.70
Cascades Frog	<i>Rana cascadae</i>	1.57
Northern Goshawk	<i>Accipiter gentilis</i>	1.50
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.32
Flammulated Owl	<i>Otus flammeolus</i>	1.22
Pika	<i>Ochotona princeps</i>	1.22
American Marten	<i>Martes americana</i>	1.18

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Bighorn Sheep	<i>Ovis canadensis</i>	3.55
Mule Deer	<i>Odocoileus hemionus</i>	1.02
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Ross' Avens	<i>Geum rossii</i> var. <i>depressum</i>	Vascular Plants	5.15
Salish's Daisy	<i>Erigeron salishii</i>	Vascular Plants	4.45
Showy Stickseed	<i>Hackelia venusta</i>	Vascular Plants	4.45
Seely's Silene	<i>Silene seelyi</i>	Vascular Plants	4.39
Oregon Checkermallow	<i>Sidalcea oregana</i> var. <i>calva</i>	Vascular Plants	4.16
Wenatchee Larkspur	<i>Delphinium viridescens</i>	Vascular Plants	3.74
Long-sepal Globemallow	<i>Iliamna longisepala</i>	Vascular Plants	3.13
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	2.88
Thompson's Pincushion	<i>Chaenactis thompsonii</i>	Vascular Plants	2.25

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forests	2.05

Jack Creek-Williamson River - TRACS-33—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 12 in the Region for Aspen habitat.

The watershed is also important because it has a high RA value for Priority Habitats, moderately high RA values for Socially and Economically Important Vertebrates and Priority Vertebrates, and a moderately high biodiversity score.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	2.36
Fisher	<i>Martes pennanti</i>	2.29
American Marten	<i>Martes americana</i>	1.65
Great Gray Owl	<i>Strix nebulosa</i>	1.51
Flammulated Owl	<i>Otus flammeolus</i>	1.35
Western Gray Squirrel	<i>Sciurus griseus</i>	1.21
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.14
Bufflehead	<i>Bucephala albeola</i>	1.12
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.08

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.19
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants

This watershed is not important for any Priority Plants.

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Evening Fieldslug	<i>Deroceras hesperium</i>	2.26

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Habitats

Priority Habitat	Relative Abundance
Wet Meadows	3.60
Aspen	2.55
Late-seral Ponderosa Pine	1.87
Cottonwood Riparian	1.34

Little Butte Creek - TRACS-38—Habitat Conservation and Restoration Watershed

This watershed is split between the East Cascades/Modoc Plateau Ecoregion and the West Cascades Ecoregion.

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Southeast Late-seral Mixed-conifer habitat.

The watershed is also important because it has moderately high RA values for Socially and Economically Important Vertebrates, Priority Habitats, and Priority Vertebrates.

Priority Vertebrates - East Cascades/Modoc Plateau - Federally listed and candidate species are identified in bold.

Common Name	Scientific Name	Relative Abundance
Fisher	<i>Martes pennanti</i>	3.07
Western Gray Squirrel	<i>Sciurus griseus</i>	1.99
American Marten	<i>Martes americana</i>	1.95
Great Gray Owl	<i>Strix nebulosa</i>	1.91
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.83
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.57
Flammulated Owl	<i>Otus flammeolus</i>	1.54
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.38
Northern Goshawk	<i>Accipiter gentilis</i>	1.36
Pika	<i>Ochotona princeps</i>	1.04

Priority Vertebrates – West Cascades

Common Name	Scientific Name	Relative Abundance
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	3.16
Ringtail	<i>Bassariscus astutus</i>	2.33
Fisher	<i>Martes pennanti</i>	2.17
American Marten	<i>Martes americana</i>	1.31
Pika	<i>Ochotona princeps</i>	1.30
Western Gray Squirrel	<i>Sciurus griseus</i>	1.20

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Social/Economic Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.22
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Social/Economic Vertebrates – West Cascades

This portion of the watershed is not important for any Priority Social or Economic Vertebrates.

Priority Plants - East Cascades/Modoc Plateau

This portion of the watershed is not important for any Priority Plants.

Priority Plants – West Cascades

Common Name	Scientific Name	Group	Relative Abundance
Moss	<i>Bryum calobryoides</i>	Nonvascular Plants	5.01
Fungus	<i>Gomphus kauffmanii</i>	Fungi	4.61
Lichen	<i>Chaenotheca subroscida</i>	Fungi	3.76

Priority Invertebrates – East Cascades/Modoc Plateau

This portion of the watershed is not important for any Priority Invertebrates.

Priority Invertebrates – West Cascades

Common Name	Scientific Name	Relative Abundance
Mardon Skipper	<i>Polites mardon</i>	5.48
Travelling Sideband	<i>Monadenia fidelis celeuthia</i>	3.66
Siskiyou Shoulderband	<i>Monadenia chaceana</i>	3.56

Priority Habitats – East Cascades/Modoc Plateau

Priority Habitat	Relative Abundance
Southeast Late-seral Mixed Conifer	3.61
Late-seral High-elevation Fir Forests	1.71
Deciduous Riparian (Willows and Other Shrubs)	1.48

Priority Habitats – West Cascades

Priority Habitat	Relative Abundance
Springs and Seeps	3.33
Southeast Late-seral Mixed Conifer	2.72
Deciduous Riparian (Willows and Other Shrubs)	1.26

TRACS: Appendix L

East Cascades/Modoc Plateau

Little Naches River - TRACS-39—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Vertebrates.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Priority Vertebrates and Socially and Economically Important Vertebrates, and a high biodiversity score.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abun-
Larch Mountain Salamander	<i>Plethodon larselli</i>	3.59
Mountain Goat	<i>Oreamnos americanus</i>	2.70
Spruce Grouse	<i>Falcapennis canadensis</i>	2.52
North American Wolverine	<i>Gulo gulo luscus</i>	2.43
Harlequin Duck	<i>Histrionicus histrionicus</i>	2.19
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	2.14
Boreal Owl	<i>Aegolius funereus</i>	2.00
Cascades Frog	<i>Rana cascadae</i>	1.90
Northern Goshawk	<i>Accipiter gentilis</i>	1.83
Flammulated Owl	<i>Otus flammeolus</i>	1.60
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.52
Pika	<i>Ochotona princeps</i>	1.27
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.15

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Bighorn Sheep	<i>Ovis canadensis</i>	2.30
Elk	<i>Cervus canadensis</i>	1.12
Mule Deer	<i>Odocoileus hemionus</i>	1.02
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Lichen	<i>Chaenotheca subroscida</i>	Lichen	2.59
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	2.12

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forests	2.23
Eastside Late-seral Mixed Conifer	2.21

Little White Salmon River - TRACS-40—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Eastside Late-seral Mixed-conifer habitat.

The watershed is also important because it has moderately high RA values for Priority Plants and Priority Vertebrates and a moderately high biodiversity score.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Larch Mountain Salamander	<i>Plethodon larselli</i>	3.57
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	2.20
Western Gray Squirrel	<i>Sciurus griseus</i>	2.19
Northern Goshawk	<i>Accipiter gentilis</i>	1.82
American Marten	<i>Martes americana</i>	1.65
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.52
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.27
Pika	<i>Ochotona princeps</i>	1.13
Cascades Frog	<i>Rana cascadae</i>	1.10

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.07
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Pale Blue-eyed-grass	<i>Sisyrinchium sarmentosum</i>	Vascular Plants	4.75

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Eastside Late-seral Mixed Conifer	2.25

TRACS: Appendix L

East Cascades/Modoc Plateau

Mad River - TRACS-44—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 12 in the Region for Aspen habitat.
- One of the top 10 in the Region for Socially and Economically Important Vertebrates.

This watershed is also important because it has high RA values for Priority Plants and Priority Vertebrates.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Canada Lynx	<i>Lynx canadensis</i>	3.45
Spruce Grouse	<i>Falcapennis canadensis</i>	2.32
North American Wolverine	<i>Gulo gulo luscus</i>	2.14
Harlequin Duck	<i>Histrionicus histrionicus</i>	2.00
Cascades Frog	<i>Rana cascadae</i>	1.69
Boreal Owl	<i>Aegolius funereus</i>	1.53
Northern Goshawk	<i>Accipiter gentilis</i>	1.32
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.29
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.22
Pika	<i>Ochotona princeps</i>	1.20
Flammulated Owl	<i>Otus flammeolus</i>	1.04

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Bighorn Sheep	<i>Ovis canadensis</i>	2.42
Elk	<i>Cervus canadensis</i>	1.09
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Long-sepal Globemallow	<i>Iliamna longisepala</i>	Vascular Plants	3.80
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	1.18

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Chelan Mountainsnail	<i>Oreohelix</i> sp. 1	3.76

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Habitats

Priority Habitat	Relative Abundance
Aspen	3.15
Late-seral High-elevation Fir Forests	1.76
Springs and Seeps	1.75

Middle Chewaucan River - TRACS-45—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 12 in the Region for Aspen habitat.

The watershed is also important because it has a high RA value for Priority Habitats, and moderately high RA values for Priority Plants and Socially and Economically Important Vertebrates.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Great Gray Owl	<i>Strix nebulosa</i>	1.60
Flammulated Owl	<i>Otus flammeolus</i>	1.25
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.08
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.07

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Bighorn Sheep	<i>Ovis canadensis</i>	1.14
Elk	<i>Cervus canadensis</i>	1.12
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Blue-leaved Penstemon	<i>Penstemon glaucinus</i>	Vascular Plants	3.09
Green-tinged Indian-paintbrush	<i>Castilleja chlorotica</i>	Vascular Plants	2.74
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	1.50

Priority Invertebrates

Common Name	Scientific Name	Relative Abun-
Evening Fieldslug	<i>Deroceras hesperium</i>	3.81

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Habitats

Priority Habitat	Relative Abundance
Aspen	2.58
Late-seral Ponderosa Pine	1.90
Springs and Seeps	1.68
Cottonwood Riparian	1.51
Southeast Late-seral Mixed Conifer	1.50

Middle Fork Teanaway River-Teanaway River - TRACS-46—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Eastside Late-seral Mixed-conifer habitat.

The watershed is also important because it has a high RA value for Priority Vertebrates and Socially and Economically Important Vertebrates, and a moderately high RA value for Priority Plants.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Spruce Grouse	<i>Falcapennis canadensis</i>	2.52
North American Wolverine	<i>Gulo gulo luscus</i>	2.34
Harlequin Duck	<i>Histrionicus histrionicus</i>	2.15
Cascades Frog	<i>Rana cascadae</i>	1.92
Boreal Owl	<i>Aegolius funereus</i>	1.78
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.54
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.45
Mountain Goat	<i>Oreamnos americanus</i>	1.42
Northern Goshawk	<i>Accipiter gentilis</i>	1.41
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.22
Flammulated Owl	<i>Otus flammeolus</i>	1.14
Pika	<i>Ochotona princeps</i>	1.10

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.18
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Thompson's Pincushion	<i>Chaenactis thompsonii</i>	Vascular Plants	5.16
Seely's Silene	<i>Silene seelyi</i>	Vascular Plants	2.77

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Eastside Late-seral Mixed Conifer	2.26

Mosier Creek-Columbia River - TRACS-49—Integrated Priorities Watershed

This watershed is assigned to the West Cascades Ecoregion, but probably should have been assigned to the East Cascades/Modoc Plateau Ecoregion. The watershed is in a transition zone between east and west Cascades ecosystems. For this reason Priority Species and Habitats are listed for both ecoregions.

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Plants.
- One of the top 30 in the Region for integration of priorities due to a high biodiversity score and a moderate RA value for Priority Vertebrates.

Priority Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Larch Mountain Salamander	<i>Plethodon larselli</i>	2.91
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	2.70
Western Gray Squirrel	<i>Sciurus griseus</i>	1.78
Boreal Owl	<i>Aegolius funereus</i>	1.36
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.06

Priority Vertebrates – West Cascades - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Oregon Spotted Frog	<i>Rana pretiosa</i>	2.92
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	2.21
Larch Mountain Salamander	<i>Plethodon larselli</i>	1.71
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	1.55
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	1.35
Western Gray Squirrel	<i>Sciurus griseus</i>	1.14
Pika	<i>Ochotona princeps</i>	1.13

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Social/Economic Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Wild Turkey	<i>Meleagris gallopavo</i>	1.30

Priority Social/Economic Vertebrates – West Cascades

This portion of the watershed is not important for any Priority Social and Economic Vertebrates.

Priority Plants – East Cascades/Modoc Plateau

Common Name	Scientific Name	Group	Relative Abundance
Oregon Fleabane	<i>Erigeron oreganus</i>	Vascular Plants	5.92
Howell's Bentgrass	<i>Agrostis howellii</i>	Vascular Plants	5.73
Pale Blue-eyed-grass	<i>Sisyrinchium sarmentosum</i>	Vascular Plants	4.23

Priority Plants – West Cascades

Common Name	Scientific Name	Group	Relative Abundance
Howell's Bentgrass	<i>Agrostis howellii</i>	Vascular Plants	5.73
Oregon Sullivantia	<i>Sullivantia oregana</i>	Vascular Plants	5.33
Oregon Fleabane	<i>Erigeron oreganus</i>	Vascular Plants	5.18
Pale Blue-eyed-grass	<i>Sisyrinchium sarmentosum</i>	Vascular Plants	4.23
Howell's Fleabane	<i>Erigeron howellii</i>	Vascular Plants	3.94

Priority Invertebrates – East Cascades/Modoc Plateau

This portion of the watershed is not important for any Priority Invertebrates.

Priority Invertebrates – West Cascades

This portion of the watershed is not important for any Priority Invertebrates.

Priority Habitats – East Cascades/Modoc Plateau

Priority Habitat	Relative Abundance
Oak and Pine	3.72
Springs and Seeps	2.05
Late-seral Ponderosa Pine	1.62
Late-seral Mixed Conifer - Eastside	1.62
Deciduous Riparian (Willows and Other Shrubs)	1.54
Cottonwood Riparian	1.26

Priority Habitats – West Cascades

This watershed is not important for any Priority Habitats.

TRACS: Appendix L

East Cascades/Modoc Plateau

Peshastin Creek - TRACS-55— Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Plants and Socially and Economically Important Vertebrates.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Priority Plants, Priority Vertebrates and Socially and Economically Important Vertebrates, a moderately high RA values for Priority Habitats, and a moderately high biodiversity score.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Spruce Grouse	<i>Falciennis canadensis</i>	2.43
North American Wolverine	<i>Gulo gulo luscus</i>	2.26
Mountain Goat	<i>Oreamnos americanus</i>	2.13
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.96
Boreal Owl	<i>Aegolius funereus</i>	1.76
Cascades Frog	<i>Rana cascadae</i>	1.70
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.47
Northern Goshawk	<i>Accipiter gentilis</i>	1.32
Pika	<i>Ochotona princeps</i>	1.31
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.30
Flammulated Owl	<i>Otus flammeolus</i>	1.16
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.13

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Bighorn Sheep	<i>Ovis canadensis</i>	2.80
Elk	<i>Cervus canadensis</i>	1.07
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Oregon Checkermallow	<i>Sidalcea oregana</i> var. <i>calva</i>	Vascular Plants	5.71
Wenatchee Larkspur	<i>Delphinium viridescens</i>	Vascular Plants	5.40
Showy Stickseed	<i>Hackelia venusta</i>	Vascular Plants	4.90
Ross' Avens	<i>Geum rossii</i> var. <i>depressum</i>	Vascular Plants	4.88
Seely's Silene	<i>Silene seelyi</i>	Vascular Plants	4.41
Long-sepal Globemallow	<i>Iliamna longisepala</i>	Vascular Plants	3.59
Thompson's Pincushion	<i>Chaenactis thompsonii</i>	Vascular Plants	2.41
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	1.43

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Aspen	2.55
Eastside Late-seral Mixed Conifer	1.83

Potter Canyon-Deschutes River - TRACS-57— Habitat Conservation and Restoration Watershed

This watershed is split between the East Cascades/Modoc Plateau Ecoregion and the Columbia Plateau Ecoregion.

This watershed is a priority because it is split with the Columbia Plateau Ecoregion, where it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

Priority Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	3.66
American Marten	<i>Martes americana</i>	2.06
Bufflehead	<i>Bucephala albeola</i>	1.83
Great Gray Owl	<i>Strix nebulosa</i>	1.64
Flammulated Owl	<i>Otus flammeolus</i>	1.44
Boreal Owl	<i>Aegolius funereus</i>	1.36
Western Gray Squirrel	<i>Sciurus griseus</i>	1.34
Pika	<i>Ochotona princeps</i>	1.33
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.19

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Vertebrates – Columbia Plateau

This portion of the watershed is not important for any Priority Vertebrates.

Priority Social/Economic Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.15
Mule Deer	<i>Odocoileus hemionus</i>	1.02
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Social/Economic Vertebrates – Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	2.53
Mule Deer	<i>Odocoileus hemionus</i>	1.02

Priority Plants - East Cascades/Modoc Plateau

Common Name	Scientific Name	Group	Relative Abundance
Peck's Penstemon	<i>Penstemon peckii</i>	Vascular Plants	3.12

Priority Plants – Columbia Plateau

This portion of the watershed is not important for any Priority Plants.

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – East Cascades/Modoc Plateau

Priority Habitat	Relative Abundance
Late-Seral Ponderosa Pine	2.04

Priority Habitats – Columbia Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	2.94
Deciduous Riparian (Willows and Other Shrubs)	1.08

Rock Creek-Buck Creek - TRACS-58—Habitat Conservation and Restoration Watershed

This watershed is split between the East Cascades/Modoc Plateau Ecoregion and the Columbia Plateau Ecoregion.

TRACS: Appendix L

East Cascades/Modoc Plateau

This watershed is a priority because it is split with the Columbia Plateau Ecoregion, where it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

Priority Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	2.70
Upland Sandpiper	<i>Bartramia longicauda</i>	2.61
Great Gray Owl	<i>Strix nebulosa</i>	1.56
Flammulated Owl	<i>Otus flammeolus</i>	1.48
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.26
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.23

Priority Vertebrates – Columbia Plateau

This portion of the watershed is not important for any Priority Vertebrates.

Priority Social/Economic Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.20
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Social/Economic Vertebrates – Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	2.24
Mule Deer	<i>Odocoileus hemionus</i>	1.05

Priority Plants

This watershed is not important for any Priority Plants.

Priority Invertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Evening Fieldslug	<i>Deroceras hesperium</i>	2.02

Priority Invertebrates – Columbia Plateau

This watershed is not important for any Priority Invertebrates.

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Habitats – East Cascades/Modoc Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	1.53
Springs and Seeps	1.34

Priority Habitats – Columbia Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	5.01
Deciduous Riparian (Willows and Other Shrubs)	1.04

Spencer Creek - TRACS-62—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Southeast Late-seral Mixed-conifer habitat.

The watershed is also important because it has moderately high RA values for Socially and Economically Important Vertebrates, Priority Habitats, and Priority Vertebrates.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Fisher	<i>Martes pennanti</i>	2.56
Great Gray Owl	<i>Strix nebulosa</i>	1.51
Western Gray Squirrel	<i>Sciurus griseus</i>	1.51
American Marten	<i>Martes americana</i>	1.45
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.26
Flammulated Owl	<i>Otus flammeolus</i>	1.21
Cascades Frog	<i>Rana cascadae</i>	1.09
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.07

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.15
Mule Deer	<i>Odocoileus hemionus</i>	1.02
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Alpine Gentian	<i>Gentiana newberryi</i>	Vascular Plants	4.57
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	1.15

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Southeast Late-seral Mixed Conifer	3.35
Springs and Seeps	1.80
Deciduous Riparian (Willows and Other Shrubs)	1.59
Late-seral High-elevation Fir Forest	1.39
Wet Meadows	1.18

Squaw Creek - TRACS-63—Habitat Conservation and Restoration Watershed

This watershed is split between the East Cascades/Modoc Plateau Ecoregion and the Columbia Plateau Ecoregion.

This watershed is a priority because it is split with the Columbia Plateau Ecoregion, where it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

Priority Vertebrates – East Cascades/Modoc Plateau - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	3.06
Bufflehead	<i>Bucephala albeola</i>	2.23
American Marten	<i>Martes americana</i>	1.97
Great Gray Owl	<i>Strix nebulosa</i>	1.69
Boreal Owl	<i>Aegolius funereus</i>	1.66
Western Gray Squirrel	<i>Sciurus griseus</i>	1.57
Flammulated Owl	<i>Otus flammeolus</i>	1.45
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.29
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.24
Pika	<i>Ochotona princeps</i>	1.23
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.22
Northern Goshawk	<i>Accipiter gentilis</i>	1.13

Priority Vertebrates – Columbia Plateau

This portion of the watershed is not important for any Priority Vertebrates.

Priority Social/Economic Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.05
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Social/Economic Vertebrates – Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	2.57
Mule Deer	<i>Odocoileus hemionus</i>	1.05

Priority Plants – East Cascades/Modoc Plateau

Common Name	Scientific Name	Group	Relative Abundance
Peck's Penstemon	<i>Penstemon peckii</i>	Vascular Plants	4.54
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	2.30

Priority Plants – Columbia Plateau

This portion of the watershed is not important for any Priority Plants.

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – East Cascades/Modoc Plateau

Priority Habitat	Relative Abundance
Southeast Late-seral Mixed Conifer	1.77
Late-seral Ponderosa Pine	1.65
Cottonwood Riparian	1.18
High-elevation Fir Forest	1.13

Priority Habitats – Columbia Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	3.85
Deciduous Riparian (Willows and Other Shrubs)	1.66

Sycan River at Sycan Marsh - TRACS-66—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Habitats.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Upland Sandpiper	<i>Bartramia longicauda</i>	3.68
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	2.55
Great Gray Owl	<i>Strix nebulosa</i>	1.19

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.03
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Green-tinged Indian-paintbrush	<i>Castilleja chlorotica</i>	Vascular Plants	2.58

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Evening Fieldslug	<i>Deroceras hesperium</i>	2.06

Priority Habitats

Priority Habitat	Relative Abundance
Wet Meadows	4.02
Springs and Seeps	3.41
Aspen	2.44
Shrub Steppe	1.88
Cottonwood Riparian	1.62
Late-seral Ponderosa Pine	1.53

Twentymile Creek - TRACS-70—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 12 in the Region for Aspen habitat.

The watershed is also important because it has a moderately high RA value for Priority Habitats.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	2.09
Pika	<i>Ochotona princeps</i>	1.07

Priority Social/Economic Vertebrates

This watershed is not important for any Priority Socially/Economic Vertebrates.

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Plants

This watershed is not important for any Priority Plants.

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Aspen	3.09
Springs and Seeps	1.83
Deciduous Riparian (Willows and Other Shrubs)	1.82

Tygh Creek - TRACS-70—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top six in the Region for Oak and Pine habitat.
- One of the top 10 in the Region for Priority Habitats.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Priority Vertebrates and Priority Habitats, and moderately high RA values for Priority Plants and Socially and Economically Important Vertebrates.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	3.48
Bufflehead	<i>Bucephala albeola</i>	2.36
Cascades Frog	<i>Rana cascadae</i>	1.93
Great Gray Owl	<i>Strix nebulosa</i>	1.71
Western Gray Squirrel	<i>Sciurus griseus</i>	1.59
Boreal Owl	<i>Aegolius funereus</i>	1.54
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.42
Flammulated Owl	<i>Otus flammeolus</i>	1.41
Northern Goshawk	<i>Accipiter gentilis</i>	1.27
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.27
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.24
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.24
Pika	<i>Ochotona princeps</i>	1.22

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.10
Mule Deer	<i>Odocoileus hemionus</i>	1.02
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Mountain Moonwort	<i>Botrychium montanum</i>	Vascular Plants	5.30
Sickle-pod Rockcress	<i>Arabis sparsiflora</i> var. <i>atrorubens</i>	Vascular Plants	3.69

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Dallas Sideband	<i>Monadenia fidelis minor</i>	5.16

Priority Habitats

Priority Habitat	Relative Abundance
Oak and Pine	3.85
Deciduous Riparian (Willows and Other Shrubs)	2.20
Cottonwood Riparian	1.92
Eastside Late-seral Mixed Conifer	1.75
Late-seral High-elevation Fir Forests	1.25
Late-seral Ponderosa Pine	1.24

Upper Metolius River - TRACS-76—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 30 in the Region for integration of priorities, due to high RA values for Priority Plants, Priority Habitats and Priority Vertebrates, a moderately high RA value for Socially and Economically Important Vertebrates, and a moderately high biodiversity score.

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Bufflehead	<i>Bucephala albeola</i>	2.39
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	2.16
American Marten	<i>Martes americana</i>	2.02
Great Gray Owl	<i>Strix nebulosa</i>	1.93
Boreal Owl	<i>Aegolius funereus</i>	1.83
Western Gray Squirrel	<i>Sciurus griseus</i>	1.76
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.73
Flammulated Owl	<i>Otus flammeolus</i>	1.66
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.61
Northern Goshawk	<i>Accipiter gentilis</i>	1.57
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.50
Cascades Frog	<i>Rana cascadae</i>	1.47
Pika	<i>Ochotona princeps</i>	1.21
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.07

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Ruffed Grouse	<i>Bonasa umbellus</i>	1.93
Elk	<i>Cervus canadensis</i>	1.08

Priority Plants - Federally listed and candidate species are identified in bold.

Common Name	Scientific Name	Group	Relative Abundance
Fungus	<i>Hygrophorus caeruleus</i>	Fungi	5.11
Peck's Penstemon	<i>Penstemon peckii</i>	Vascular Plants	4.86
Fungus	<i>Alpova alexsmithii</i>	Fungi	4.82
Lichen	<i>Chaenotheca subroscida</i>	Fungi	4.13
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	1.49

Priority Invertebrates

This watershed is not important for any priority invertebrates.

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Habitats

Priority Habitat	Relative Abundance
Cottonwood Riparian	1.94
Deciduous Riparian (Willows and Other Shrubs)	1.71
Eastside Late-seral Mixed Conifer	1.40
Late-seral High-elevation Fir Forests	1.39
Late-seral Ponderosa Pine	1.24
Springs and Seeps	1.03
Southeast Late-seral Mixed Conifer	1.00

Upper Sycan River - TRACS-81—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 12 in the Region for Aspen habitat.

The watershed is also important because it has a high RA value for Priority Habitats, a high biodiversity score, and moderately high RA values for Priority Plants and Socially and Economically Important Vertebrates.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Upland Sandpiper	<i>Bartramia longicauda</i>	3.62
Great Gray Owl	<i>Strix nebulosa</i>	1.74
Flammulated Owl	<i>Otus flammeolus</i>	1.35
Silver-haired Bat	<i>Lasiorycteris noctivagans</i>	1.25
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.22
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.06
Northern Goshawk	<i>Accipiter gentilis</i>	1.01

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Bighorn Sheep	<i>Ovis canadensis</i>	1.84
Elk	<i>Cervus canadensis</i>	1.13
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Green-tinged Indian-paintbrush	<i>Castilleja chlorotica</i>	Vascular Plants	4.24
Blue-leaved Penstemon	<i>Penstemon glaucinus</i>	Vascular Plants	4.19
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	1.74

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Evening Fieldslug	<i>Deroceras hesperium</i>	3.94

Priority Habitats

Priority Habitat	Relative Abundance
Aspen	4.17
Southeast Late-seral Mixed Conifer	1.59
Cottonwood Riparian	1.33
Late-seral Ponderosa Pine	1.30
Deciduous Riparian (Willows and Other Shrubs)	1.04
Shrub Steppe	1.03

Walker Creek - TRACS-85—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	3.40

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Mule Deer	<i>Odocoileus hemionus</i>	1.03

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Pumice Moonwort	<i>Botrychium pumicola</i>	Vascular Plants	3.60

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	2.50
Shrub Steppe	2.45

TRACS: Appendix L

East Cascades/Modoc Plateau

White River - TRACS-89—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top six in the Region for Oak and Pine habitat.
- One of the top 10 in the Region for Priority Vertebrates.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Priority Habitats and Priority Vertebrates, moderately high RA values for Priority Plants and Socially and Economically Important Vertebrates, and a moderately high biodiversity score.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	3.63
Oregon Spotted Frog	<i>Rana pretiosa</i>	3.00
Fisher	<i>Martes pennanti</i>	2.98
Bufflehead	<i>Bucephala albeola</i>	2.35
Western Gray Squirrel	<i>Sciurus griseus</i>	1.97
Great Gray Owl	<i>Strix nebulosa</i>	1.84
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.82
Boreal Owl	<i>Aegolius funereus</i>	1.72
Cascades Frog	<i>Rana cascadae</i>	1.67
Flammulated Owl	<i>Otus flammeolus</i>	1.53
Northern Goshawk	<i>Accipiter gentilis</i>	1.52
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.50
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.36
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.30
Pika	<i>Ochotona princeps</i>	1.04

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.15
Mule Deer	<i>Odocoileus hemionus</i>	1.01
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Mountain Moonwort	<i>Botrychium montanum</i>	Vascular Plants	5.22
Luminous Moss	<i>Schistostega pennata</i>	Nonvascular Plants	4.02
Brewer's Reedgrass	<i>Calamagrostis breweri</i>	Vascular Plants	2.93

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Columbia Oregonian	<i>Cryptomastix hendersoni</i>	4.90
Dallas Sideband	<i>Monadenia fidelis minor</i>	3.95

Priority Habitats

Priority Habitat	Relative Abundance
Oak and Pine	2.72
Deciduous Riparian (Willows and Other Shrubs)	2.34
Springs and Seeps	2.27
Eastside Late-seral Mixed Conifer	2.16
Cottonwood Riparian	2.07

White Salmon River - TRACS-90—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Eastside Late-seral Mixed-conifer habitat.

The watershed is also important because it has a high RA value for Priority Vertebrates, moderately high RA values for Priority Plants and Priority Habitats, and a moderately high biodiversity score.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Larch Mountain Salamander	<i>Plethodon larselli</i>	3.48
Oregon Spotted Frog	<i>Rana pretiosa</i>	3.14
North American Wolverine	<i>Gulo gulo luscus</i>	2.37
Western Gray Squirrel	<i>Sciurus griseus</i>	2.18
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.93
Boreal Owl	<i>Aegolius funereus</i>	1.84
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.78
Northern Goshawk	<i>Accipiter gentilis</i>	1.71
Cascades Frog	<i>Rana cascadae</i>	1.48
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.40
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.24
American Marten	<i>Martes americana</i>	1.16
Pika	<i>Ochotona princeps</i>	1.08
Mountain Goat	<i>Oreamnos americanus</i>	1.01

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.18
Mule Deer	<i>Odocoileus hemionus</i>	1.02
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Pale Blue-eyed-grass	<i>Sisyrinchium sarmentosum</i>	Vascular Plants	4.38
Barrett's Beardtongue	<i>Penstemon barrettiae</i>	Vascular Plants	2.64

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Mardon Skipper	<i>Polites mardon</i>	2.38

Priority Habitats

Priority Habitat	Relative Abundance
Eastside Late-Seral Mixed Conifer	2.40
Oak and Pine	1.51
Deciduous Riparian (Willows and Other Shrubs)	1.09

Willow Creek-Frontal Goose Lake - TRACS-91—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 12 in the Region for Aspen habitat.

The watershed is also important because it has a high RA value for Priority Habitats.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	2.65
Great Gray Owl	<i>Strix nebulosa</i>	1.02

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

TRACS: Appendix L

East Cascades/Modoc Plateau

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Warner Mountain Bedstraw	<i>Galium serpenticum</i> ssp. <i>warnerense</i>	Vascular Plants	4.24

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Aspen	2.57
Southeast Late-seral Mixed Conifer	2.42
Springs and Seeps	1.71
Shrub Steppe	1.38

TRACS: Appendix M

Klamath

Klamath Ecoregional Priorities

The Klamath Ecoregion of northwestern California and southwestern Oregon is one of the most distinctive and complex ecological zones in the United States. Its dramatic topography, complex fire history, extensive watercourses, and often-abrupt climatic changes create a region rich in natural beauty, diverse vegetation, and scientific value. The variability and richness of this region enhance its importance as an ecologically valuable area of endemic plant communities, eclectic geologic conditions, and sensitive plant and animal habitats. Positioned among several distinct ecoregions, the Klamath Mountains are transitional between the Great Basin, the Coast Ranges of California and Oregon, the Cascades, the Sierra Nevada, California's Central Valley and the northern California coast. This distinctive geographic position has resulted in an extensive overlap of major plant communities. Additional information on this ecoregion can be found in the assessment developed by The Nature Conservancy at:

http://conserveonline.org/docs/2004/10/Klamath_Mountains_Ecoregional_Assessment_report.pdf

Forests: Rogue River-Siskiyou, Umpqua

Management Class	Definition	% of Ecoregion
Preservation	Long-term preservation by Act of Congress	6
Conservation Emphasis	Preservation by Forest Plan land allocation	8
Managed Conservation	Conservation areas with limited management	8
Managed Multiple Objectives	Managed areas with multiple resource objectives	3
Active Management	Active management of multiple resources	3
Recreation Emphasis	Recreation emphasis areas	<1
Non-Forest Service	Non-Forest Service lands	73

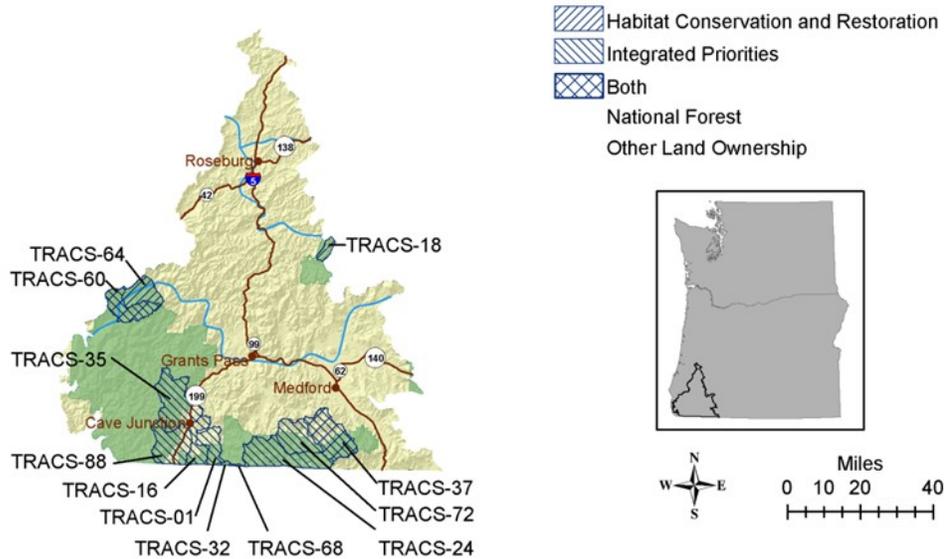
Priority Watersheds in the Klamath Ecoregion

Integrated Priorities	Watershed ID
Althouse Creek	TRACS-01
East Fork Illinois River	TRACS-16
Headwaters Applegate River	TRACS-24
Josephine Creek-Illinois River	TRACS-35
Upper Applegate River	TRACS-72
West Fork Illinois River	TRACS-88
Habitat Conservation and Restoration	Watershed ID
Elk Creek	TRACS-18
Indian Creek	TRACS-32
Stair Creek-Rogue River	TRACS-64
Thompson Creek-Klamath River	TRACS-68
Both	Watershed ID
Little Applegate River	TRACS-37
Shasta Costa Creek-Rogue River	TRACS-60

TRACS: Appendix M

Klamath

TRACS Priority Watersheds - Klamath Mountains



Priority Species in the Klamath Ecoregion

Priority Vertebrates – Federally listed and candidate species are identified in **bold**.

Common Name	Scientific name
Black Salamander	<i>Aneides flavipunctatus</i>
California Mountain Kingsnake	<i>Lampropeltis zonata</i>
California Slender Salamander	<i>Batrachoseps attenuatus</i>
Del Norte Salamander	<i>Plethodon elongatus</i>
Fisher	<i>Martes pennanti</i>
Flammulated Owl	<i>Otus flammeolus</i>
Foothill Yellow-legged Frog	<i>Rana boylei</i>
Marbled Murrelet	<i>Brachyramphus marmoratus</i>
North American Wolverine	<i>Gulo gulo luscus</i>
Northern Spotted Owl	<i>Strix occidentalis caurina</i>
Red Tree Vole	<i>Arborimus longicaudus</i>
Ringtail	<i>Bassariscus astutus</i>
Siskiyou Mountains Salamander	<i>Plethodon stormi</i>
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>
Western Gray Squirrel	<i>Sciurus griseus</i>

TRACS: Appendix M

Klamath

Priority Socially and Economically Important Vertebrates

Common Name	Scientific name
American Beaver	<i>Castor canadensis</i>
Black-tailed Deer	<i>Odocoileus hemionus columbianus</i>
Elk	<i>Cervus elaphus</i>
Mule Deer	<i>Odocoileus hemionus</i>

Priority Plants – Federally listed and candidates species are identified in **bold**.

Common Name	Scientific Name	Group
Moss	<i>Andreaea schofieldiana</i>	Nonvascular Plants
Red Mountain Rockcress	<i>Arabis macdonaldiana</i>	Vascular Plants
Fungus	<i>Arcangeliella camphorata</i>	Fungi
Hairy Manzanita	<i>Arctostaphylos hispidula</i>	Vascular Plants
Bensoniella	<i>Bensoniella oregana</i>	Vascular Plants
Moss	<i>Bryum calobryoides</i>	Nonvascular Plants
Howell's Mariposa Lily	<i>Calochortus howellii</i>	Vascular Plants
Umpqua Mariposa Lily	<i>Calochortus umpquaensis</i>	Vascular Plants
Sedge	<i>Carex klamathensis</i>	Vascular Plants
Cascade Sedge	<i>Carex scabriuscula</i>	Vascular Plants
Marble Mountain Indian-paintbrush	<i>Castilleja schizotricha</i>	Vascular Plants
Modoc Cypress	<i>Cupressus bakeri</i>	Vascular Plants
Few-flower Bleedinghearts	<i>Dicentra pauciflora</i>	Vascular Plants
Moss	<i>Encalypta brevipes</i>	Nonvascular Plants
Oregon Willowherb	<i>Epilobium oreganum</i>	Vascular Plants
Siskiyou Willowherb	<i>Epilobium siskiyouense</i>	Vascular Plants
Siskiyou Daisy	<i>Erigeron cervinus</i>	Vascular Plants
Howell's Adder's-tongue	<i>Erythronium howellii</i>	Vascular Plants
Fungus	<i>Gastroboletus vividus</i>	Fungi
Bristly Gentian	<i>Gentiana plurisetosa</i>	Vascular Plants
Elegant Gentian	<i>Gentiana setigera</i>	Vascular Plants
Large-flower Rushlily	<i>Hastingsia bracteosa</i> var. <i>atropurpurea</i>	Vascular Plants
Large-flower Rushlily	<i>Hastingsia bracteosa</i> var. <i>bracteosa</i>	Vascular Plants
Henderson's Horkelia	<i>Horkelia hendersonii</i>	Vascular Plants
California Globemallow	<i>Iliamna latibracteata</i>	Vascular Plants
Engelmann Lomatium	<i>Lomatium engelmannii</i>	Vascular Plants
Mt. Ashland Lupine	<i>Lupinus aridus</i> ssp. <i>Ashlandensis</i>	Vascular Plants
Kincaid's Lupine	<i>Lupinus oreganus</i> var. <i>kincaidii</i>	Vascular Plants
Moss	<i>Meesia uliginosa</i>	Nonvascular Plants
Red-root Yampah	<i>Perideridia erythrorhiza</i>	Vascular Plants
Siskiyou Phacelia	<i>Phacelia leonis</i>	Vascular Plants
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants
Strawberry Saxifrage	<i>Saxifragopsis fragarioides</i>	Vascular Plants
Spreading Checkermallow	<i>Sidalcea malviflora</i> ssp. <i>Patula</i>	Vascular Plants
Western Necklace	<i>Sophora leachiana</i>	Vascular Plants
Howell's Jewelflower	<i>Streptanthus howellii</i>	Vascular Plants
Howell's Tauschia	<i>Tauschia howellii</i>	Vascular Plants
Western Bog Violet	<i>Viola lanceolata</i> ssp. <i>Occidentalis</i>	Vascular Plants

TRACS: Appendix M

Klamath

Socially/Economically/Culturally Important Plants

Common Name	Scientific Name	Group	Significance ¹
Oregon Grape	<i>Berberis aquifolium</i> , <i>B. nervosa</i>	Vascular Plants	SPF, T
Leichtlin's Camas	<i>Camassia leichtlinii</i>	Vascular Plants	T
Blue Camas, Common Camas	<i>Camassia quamash</i>	Vascular Plants	FS, T
Chanterelle	<i>Cantharellus formosus</i> , <i>C. cascadenis</i> , <i>C. cibarius?</i>	Fungi	FS, SFP, T
Springbeauty	<i>Claytonia lanceolata</i>	Vascular Plants	T
Hazelnut	<i>Corylus cornuta</i>	Vascular Plants	FS, T
Cascara	<i>Frangula purshiana</i>	Vascular Plants	FS, SFP, T
Barestem Lomatium	<i>Lomatium nudicaule</i>	Vascular Plants	T
Morel	<i>Morchella</i> sp.	Fungi	FS, SFP, T
Yampah/Sa Wikt	<i>Perideridia gairdneri</i>	Vascular Plants	T
Ipos	<i>Perideridia oregana</i>	Vascular Plants	T
Bitter Cherry	<i>Prunus emarginata</i>	Vascular Plants	T
Klamath Plum	<i>Prunus subcordata</i>	Vascular Plants	T
Chokecherry	<i>Prunus virginiana</i>	Vascular Plants	T
Oregon or Garry Oak & Black Oak	<i>Quercus garryana</i> & <i>Q. kelloggii</i>	Vascular Plants	T
Western Red Cedar	<i>Thuja plicata</i>	Vascular Plants	T
White Matsutake, Pine Mushroom	<i>Tricholoma magnivelare</i>	Fungi	FS, SFP
Black Huckleberry, Thinleaf Huckleberry	<i>Vaccinium membranaceum</i>	Vascular Plants	FS, SFP, T
California Huckleberry	<i>Vaccinium ovatum</i>	Vascular Plants	SPF, T
Beargrass	<i>Xerophyllum tenax</i>	Vascular Plants	FS, SFP, T

¹ FS = USFS Management Priority (past, present, or future); SFP = Economically Important Special Forest Product; T = Tribal Importance

Priority Invertebrates

Common Name	Scientific Name	Group
Franklin's Bumble Bee	<i>Bombus franklini</i>	Insects
Green Sideband	<i>Monadenia fidelis beryllica</i>	Molluscs
Mardon Skipper	<i>Polites mardon</i>	Moths, Butterflies and Skippers
Oregon Shoulderband	<i>Helminthoglypta hertleini</i>	Molluscs
Robust Walker	<i>Pomatiopsis binneyi</i>	Molluscs
Siskiyou Chloelaltis Grasshopper	<i>Chloelaltis aspasma</i>	Insects
Siskiyou Shoulderband	<i>Monadenia chaceana</i>	Molluscs
Travelling Sideband	<i>Monadenia fidelis celeuthia</i>	Molluscs

TRACS: Appendix M

Klamath

Priority Habitats in the Klamath Ecoregion

- Deciduous Riparian (Willows and Other Shrubs)
- Dry Meadows
- Golden Chinquapin
- Late-seral High-elevation Fir Forests
- Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock
- Oak and Pine
- Southeast Late-seral Mixed Conifer
- Springs and Seeps
- SW Oregon Mixed Pine

Priority Watershed Descriptions

Althouse Creek - TRACS-01—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for biodiversity.
- One of the top 30 in the Region for integration of priorities, due to a high RA value for Priority Plants and a moderately high RA value for Priority Vertebrates.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Black Salamander	<i>Aneides flavipunctatus</i>	2.36
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	1.96
Del Norte Salamander	<i>Plethodon elongatus</i>	1.81
Foothill Yellow-legged Frog	<i>Rana boylei</i>	1.53
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	1.34
Red Tree Vole	<i>Arborimus longicaudus</i>	1.33
Flammulated Owl	<i>Otus flammeolus</i>	1.29
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.24
Fisher	<i>Martes pennanti</i>	1.23
Ringtail	<i>Bassariscus astutus</i>	1.17
Western Gray Squirrel	<i>Sciurus griseus</i>	1.08

Priority Social/Economic Vertebrates

This watershed is not important for any Priority Social/Economic Vertebrates.

TRACS: Appendix M

Klamath

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Howell's Adder's-tongue	<i>Erythronium howellii</i>	Vascular Plants	4.92
Siskiyou Phacelia	<i>Phacelia leonis</i>	Vascular Plants	4.26
Howell's Mariposa Lily	<i>Calochortus howellii</i>	Vascular Plants	3.67
Oregon Willowherb	<i>Epilobium oreganum</i>	Vascular Plants	2.82

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Southeast Late-seral Mixed Conifer	1.66
Southwest Oregon Mixed Pine	1.08

East Fork Illinois River - TRACS-6—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for biodiversity.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Black Salamander	<i>Aneides flavipunctatus</i>	2.38
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	1.87
Del Norte Salamander	<i>Plethodon elongatus</i>	1.76
Foothill Yellow-legged Frog	<i>Rana boylei</i>	1.53
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	1.25
Flammulated Owl	<i>Otus flammeolus</i>	1.22
Red Tree Vole	<i>Arborimus longicaudus</i>	1.21
Fisher	<i>Martes pennanti</i>	1.15
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.08
Ringtail	<i>Bassariscus astutus</i>	1.08
Western Gray Squirrel	<i>Sciurus griseus</i>	1.06

Priority Social/Economic Vertebrates

This watershed is not important for any Priority Social/Economic Vertebrates.

TRACS: Appendix M

Klamath

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Howell's Adder's-tongue	<i>Erythronium howellii</i>	Vascular Plants	4.71
Howell's Mariposa Lily	<i>Calochortus howellii</i>	Vascular Plants	4.01
Oregon Willowherb	<i>Epilobium oreganum</i>	Vascular Plants	3.42
California Globemallow	<i>Iliamna latibracteata</i>	Vascular Plants	2.68

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Deciduous Riparian (Willows and Other Shrubs)	1.53

Elk Creek - TRACS-18—Habitat Conservation and Restoration Watershed

This watershed is split between the Klamath Ecoregion and West Cascades Ecoregion.

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock habitat and one of the top six in the Region for Oak and Pine habitat.

Priority Vertebrates – Klamath - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Foothill Yellow-legged Frog	<i>Rana boylei</i>	1.51
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.41
Ringtail	<i>Bassariscus astutus</i>	1.35
Flammulated Owl	<i>Otus flammeolus</i>	1.32
Fisher	<i>Martes pennanti</i>	1.27
Western Gray Squirrel	<i>Sciurus griseus</i>	1.06

Priority Vertebrates – West Cascades - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Foothill Yellow-legged Frog	<i>Rana boylei</i>	3.15
Ringtail	<i>Bassariscus astutus</i>	2.15
Fisher	<i>Martes pennanti</i>	2.14
Cascades Frog	<i>Rana cascadae</i>	1.37
Western Gray Squirrel	<i>Sciurus griseus</i>	1.35

TRACS: Appendix M

Klamath

Priority Social/Economic Vertebrates - Klamath

Common Name	Scientific Name	Relative Abundance
Deer and Elk Winter Range	NA	1.53
Elk	<i>Cervus canadensis</i>	1.03

Priority Social/Economic Vertebrates – West Cascades

Common Name	Scientific Name	Relative Abundance
Deer and Elk Winter Range	NA	1.19
Elk	<i>Cervus canadensis</i>	1.05

Priority Plants – Klamath - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Umpqua Mariposa Lily	<i>Calochortus umpquaensis</i>	Vascular Plants	5.90
Kincaid's Lupine	<i>Lupinus oreganus var. kincaidii</i>	Vascular Plants	4.76

Priority Plants – West Cascades

Common Name	Scientific Name	Group	Relative Abundance
Thompson's Mistmaiden	<i>Romanzoffia thompsonii</i>	Vascular Plants	1.91
California Globe-mallow	<i>Iliamna latibracteata</i>	Vascular Plants	1.24

Priority Invertebrates - Klamath

Common Name	Scientific Name	Relative Abundance
Oregon Shoulderband	<i>Helminthoglypta hertleini</i>	4.56

Priority Invertebrates – West Cascades

Common Name	Scientific Name	Relative Abundance
Oregon Shoulderband	<i>Helminthoglypta hertleini</i>	4.87
Siskiyou Shoulderband	<i>Monadenia chaceana</i>	4.29

Priority Habitats - Klamath

Priority Habitat	Relative Abundance
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	2.47
Southeast Late-seral Mixed Conifer	2.24
Oak and Pine	2.17
Southwest Oregon Mixed Pine	2.15

TRACS: Appendix M

Klamath

Priority Habitats – West Cascades

Priority Habitat	Relative Abundance
Southeast Late-seral Mixed Conifer	2.72
Deciduous Riparian (Willows and Other Shrubs)	1.06
Springs and Seeps	1.03

Headwaters Applegate River - TRACS-24—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Plants.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Priority Plants and Priority Habitats, a high biodiversity score, and a moderately high RA value for Priority Vertebrates.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Siskiyou Mountains Salamander	<i>Plethodon stormi</i>	3.82
Black Salamander	<i>Aneides flavipunctatus</i>	2.55
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.53
Flammulated Owl	<i>Otus flammeolus</i>	1.42
Fisher	<i>Martes pennanti</i>	1.36
Foothill Yellow-legged Frog	<i>Rana boylei</i>	1.36
Ringtail	<i>Bassariscus astutus</i>	1.35
Western Gray Squirrel	<i>Sciurus griseus</i>	1.22
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	1.18
Del Norte Salamander	<i>Plethodon elongatus</i>	1.09

Priority Social/Economic Vertebrates

This watershed is not important for any Priority Social/Economic Vertebrates.

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Modoc Cypress	<i>Cupressus bakeri</i>	Vascular Plants	4.83
Few-flower Bleedinghearts	<i>Dicentra pauciflora</i>	Vascular Plants	4.80
Bristly Gentian	<i>Gentiana plurisetosa</i>	Vascular Plants	4.42
Siskiyou Willowherb	<i>Epilobium siskiyouense</i>	Vascular Plants	4.25
Marble Mountain Indian-paintbrush	<i>Castilleja schizotricha</i>	Vascular Plants	4.08
Henderson's Horkelia	<i>Horkelia hendersonii</i>	Vascular Plants	2.91
Cascade Sedge	<i>Carex scabriuscula</i>	Vascular Plants	2.17

TRACS: Appendix M

Klamath

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Franklin's Bumble Bee	<i>Bombus franklini</i>	4.83

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forests	3.01
Southeast Late-seral Mixed Conifer	2.74
Southwest Oregon Mixed Pine	2.26
Springs and Seeps	1.38

Indian Creek - TRACS-32—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Southeast Late-seral Mixed-conifer habitat.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Black Salamander	<i>Aneides flavipunctatus</i>	2.56
Del Norte Salamander	<i>Plethodon elongatus</i>	2.01
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.84
Ringtail	<i>Bassariscus astutus</i>	1.79
Flammulated Owl	<i>Otus flammeolus</i>	1.45
Fisher	<i>Martes pennanti</i>	1.44
Western Gray Squirrel	<i>Sciurus griseus</i>	1.24
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	1.15

Priority Social/Economic Vertebrates

This watershed is not important for any Social/Economic Vertebrates.

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Siskiyou Phacelia	<i>Phacelia leonis</i>	Vascular Plants	8.30

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

TRACS: Appendix M

Klamath

Priority Habitats

Priority Habitat	Relative Abundance
Southeast Late-seral Mixed Conifer	3.42
Southwest Oregon Mixed Pine	2.74
Late-seral High-elevation Fir Forests	1.84

Josephine Creek- Illinois River - TRACS-35—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Plants.
- One of the top 30 in the Region for integration of priorities, due to a high RA value for Priority Plants, a moderately high RA value for Priority Vertebrates, and a moderately high biodiversity score.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	2.01
California Slender Salamander	<i>Batrachoseps attenuatus</i>	1.77
Black Salamander	<i>Aneides flavipunctatus</i>	1.73
Del Norte Salamander	<i>Plethodon elongatus</i>	1.70
Foothill Yellow-legged Frog	<i>Rana boylei</i>	1.37
Flammulated Owl	<i>Otus flammeolus</i>	1.28
Fisher	<i>Martes pennanti</i>	1.26
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	1.20
Red Tree Vole	<i>Arborimus longicaudus</i>	1.16
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.11
Ringtail	<i>Bassariscus astutus</i>	1.03

Priority Social/Economic Vertebrates

This watershed is not important for any Social/Economic Vertebrates.

TRACS: Appendix M

Klamath

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Large-flower Rushlily	<i>Hastingsia bracteosa</i> var. <i>bracteosa</i>	Vascular Plants	4.52
Sedge	<i>Carex klamathensis</i>	Vascular Plants	4.41
Elegant Gentian	<i>Gentiana setigera</i>	Vascular Plants	4.27
Large-flower Rushlily	<i>Hastingsia bracteosa</i> var. <i>atropurpurea</i>	Vascular Plants	4.25
Oregon Willowherb	<i>Epilobium oregonum</i>	Vascular Plants	4.18
Western Bog Violet	<i>Viola lanceolata</i> ssp. <i>occidentalis</i>	Vascular Plants	3.64
Howell's Mariposa Lily	<i>Calochortus howellii</i>	Vascular Plants	3.47
Howell's Jewelflower	<i>Streptanthus howellii</i>	Vascular Plants	3.32
Red-root Yampah	<i>Perideridia erythrorhiza</i>	Vascular Plants	3.30
Engelmann Lomatium	<i>Lomatium engelmannii</i>	Vascular Plants	3.18
Red Mountain Rockcress	<i>Arabis macdonaldiana</i>	Vascular Plants	2.88
Strawberry Saxifrage	<i>Saxifragopsis fragarioides</i>	Vascular Plants	2.37
Siskiyou Daisy	<i>Erigeron cervinus</i>	Vascular Plants	1.97
Cascade Sedge	<i>Carex scabriuscula</i>	Vascular Plants	1.23

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

This watershed is not important for any Priority Habitats.

Little Applegate River - TRACS-37—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top six in the Region for Oak and Pine habitat.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Priority Plants and Priority Habitats and a moderately high biodiversity score.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Siskiyou Mountains Salamander	<i>Plethodon stormi</i>	2.51
Black Salamander	<i>Aneides flavipunctatus</i>	2.39
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	1.39
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.31
Ringtail	<i>Bassariscus astutus</i>	1.25
Flammulated Owl	<i>Otus flammeolus</i>	1.23
Fisher	<i>Martes pennanti</i>	1.19
Western Gray Squirrel	<i>Sciurus griseus</i>	1.12

TRACS: Appendix M

Klamath

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Deer and Elk Winter Range	NA	1.05

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	4.22
Marble Mountain Indian-paintbrush	<i>Castilleja schizotricha</i>	Vascular Plants	4.15
Siskiyou Willowherb	<i>Epilobium siskiyouense</i>	Vascular Plants	3.88
Moss	<i>Bryum calobryoides</i>	Nonvascular Plants	3.60
Howell's Tauschia	<i>Tauschia howellii</i>	Vascular Plants	3.47
Henderson's Horkelia	<i>Horkelia hendersonii</i>	Vascular Plants	3.45

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forests	3.64
Springs and Seeps	2.59
Oak and Pine	1.96
Southeast Late-seral Mixed Conifer	1.78
Southwest Oregon Mixed Pine	1.68

Shasta Costa Creek-Rogue River - TRACS-60—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for biodiversity.
- One of the top nine in the Region for Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock habitat.
- One of the top 30 in the Region for integration of priorities, due to a high RA value for Priority Plants and moderately high RA values for Socially and Economically Important Vertebrates and Priority Vertebrates.

TRACS: Appendix M

Klamath

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	2.24
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>	1.98
Red Tree Vole	<i>Arborimus longicaudus</i>	1.96
Del Norte Salamander	<i>Plethodon elongatus</i>	1.92
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.55
Flammulated Owl	<i>Otus flammeolus</i>	1.47
Fisher	<i>Martes pennanti</i>	1.40
Ringtail	<i>Bassariscus astutus</i>	1.31
Western Gray Squirrel	<i>Sciurus griseus</i>	1.31
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	1.17

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Deer and Elk Winter Range	NA	1.11
Elk	<i>Cervus canadensis</i>	1.03

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Moss	<i>Bryum calobryoides</i>	Nonvascular Plants	4.07
Bensoniella	<i>Bensoniella oregana</i>	Vascular Plants	3.66
Hairy Manzanita	<i>Arctostaphylos hispidula</i>	Vascular Plants	2.95
California Globemallow	<i>Iliamna latibracteata</i>	Vascular Plants	2.87
Elegant Gentian	<i>Gentiana setigera</i>	Vascular Plants	1.87

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	2.23

TRACS: Appendix M

Klamath

Stair Creek-Rogue River -TRACS-64—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock habitat.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	2.33
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>	2.14
Red Tree Vole	<i>Arborimus longicaudus</i>	2.02
Del Norte Salamander	<i>Plethodon elongatus</i>	1.92
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.56
Flammulated Owl	<i>Otus flammeolus</i>	1.48
Fisher	<i>Martes pennanti</i>	1.43
Western Gray Squirrel	<i>Sciurus griseus</i>	1.34
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	1.26
Foothill Yellow-legged Frog	<i>Rana boylei</i>	1.20
Ringtail	<i>Bassariscus astutus</i>	1.19

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.03

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Bensoniella	<i>Bensoniella oregana</i>	Vascular Plants	3.45
California Globemallow	<i>Iliamna latibracteata</i>	Vascular Plants	2.72

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	3.17

TRACS: Appendix M

Klamath

Thompson Creek-Klamath River - TRACS-68—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Southeast Late-seral Mixed-conifer habitat.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Black Salamander	<i>Aneides flavipunctatus</i>	2.65
Del Norte Salamander	<i>Plethodon elongatus</i>	2.06
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.89
Ringtail	<i>Bassariscus astutus</i>	1.57
Fisher	<i>Martes pennanti</i>	1.53
Flammulated Owl	<i>Otus flammeolus</i>	1.52
Western Gray Squirrel	<i>Sciurus griseus</i>	1.34
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	1.20

Priority Social/Economic Vertebrates

This watershed is not important for any Priority Social/Economic Vertebrates.

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Few-flower Bleedinghearts	<i>Dicentra pauciflora</i>	Vascular Plants	5.56

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Southeast Late-Seral Mixed Conifer	3.67
Southwest Oregon Mixed Pine	2.85

TRACS: Appendix M

Klamath

Upper Applegate River - TRACS-72—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for biodiversity.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Siskiyou Mountains Salamander	<i>Plethodon stormi</i>	3.36
Black Salamander	<i>Aneides flavipunctatus</i>	2.49
Foothill Yellow-legged Frog	<i>Rana boylei</i>	1.58
Flammulated Owl	<i>Otus flammeolus</i>	1.24
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	1.22
Fisher	<i>Martes pennanti</i>	1.19
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.18
Western Gray Squirrel	<i>Sciurus griseus</i>	1.16
Ringtail	<i>Bassariscus astutus</i>	1.01

Priority Social/Economic Vertebrates

This watershed is not important for any Priority Social/Economic Vertebrates.

Priority Plants

This watershed is not important for any Priority Plants.

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Siskiyou Shoulderband	<i>Monadenia chaceana</i>	2.42

Priority Habitats

Priority Habitat	Relative Abundance
Springs and Seeps	2.19

West Fork Illinois River - TRACS-88—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Plants.

TRACS: Appendix M

Klamath

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Black Salamander	<i>Aneides flavipunctatus</i>	2.29
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	1.91
Del Norte Salamander	<i>Plethodon elongatus</i>	1.66
Foothill Yellow-legged Frog	<i>Rana boylei</i>	1.35
Flammulated Owl	<i>Otus flammeolus</i>	1.27
Fisher	<i>Martes pennanti</i>	1.19

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Deer and Elk Winter Range	NA	1.34

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Red Mountain Rockcress	<i>Arabis macdonaldiana</i>	Vascular Plants	4.94
Large-flower Rushlily	<i>Hastingsia bracteosa</i> var. <i>atropurpurea</i>	Vascular Plants	4.30
Howell's Jewelflower	<i>Streptanthus howellii</i>	Vascular Plants	4.30
Western Bog Violet	<i>Viola lanceolata</i> ssp. <i>occidentalis</i>	Vascular Plants	4.28
Howell's Mariposa Lily	<i>Calochortus howellii</i>	Vascular Plants	4.16
Oregon Willowherb	<i>Epilobium oregonum</i>	Vascular Plants	3.51
Large-flower Rushlily	<i>Hastingsia bracteosa</i> var. <i>bracteosa</i>	Vascular Plants	3.45
Howell's Adder's-tongue	<i>Erythronium howellii</i>	Vascular Plants	3.21
Cascade Sedge	<i>Carex scabriuscula</i>	Vascular Plants	2.92
Sedge	<i>Carex klamathensis</i>	Vascular Plants	2.69
Elegant Gentian	<i>Gentiana setigera</i>	Vascular Plants	2.61

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Deciduous Riparian (Willows and Other Shrubs)	1.05

TRACS: Appendix N

Middle Rockies/Blue Mountains

Middle Rockies/Blue Mountains Ecoregional Priorities

The Middle Rockies/Blue Mountains Ecoregion is a large, rugged mass of mountains and intermountain valleys covering major portions of Oregon, Idaho, Montana, and a small part of Washington. The dominant vegetation of the ecoregion is coniferous forest; however, elevational diversity contributes to a variety of ecological systems ranging from sagebrush-grasslands to subalpine meadows, and alkaline fens to salt-desert scrub. Additional information about this ecoregion can be found in the assessment developed by The Nature Conservancy at: http://conserveonline.org/coldocs/2002/05/ERP_with_appendices.pdf

Forests: Malheur, Ochoco, Umatilla, Wallowa-Whitman

Management Class	Definition	% of Ecoregion
Preservation	Long-term preservation by Act of Congress	9
Conservation Emphasis	Preservation by Forest Plan land allocation	10
Managed Conservation	Conservation areas with limited management	2
Managed Multiple Objectives	Managed areas with multiple resource objectives	14
Active Management	Active management of multiple resources	17
Recreation Emphasis	Recreation emphasis areas	<1
Non-Forest Service	Non-Forest Service lands	48

TRACS: Appendix N

Middle Rockies/Blue Mountains

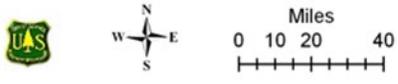
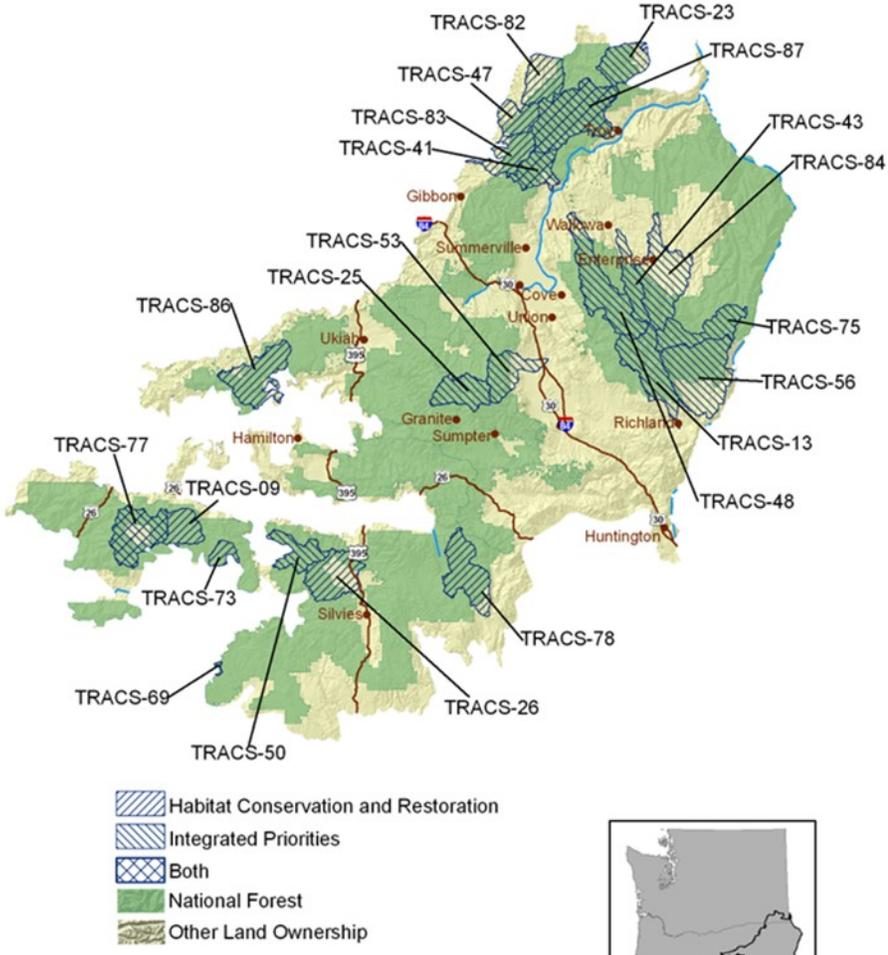
Priority Watersheds in the Middle Rockies/Blue Mountains Ecoregion

Integrated Priorities	Watershed ID
Eagle Creek	TRACS-13
George Creek-Asotin Creek	TRACS-23
Headwaters North Fork John Day River	TRACS-25
Lostine River	TRACS-43
Minam River	TRACS-48
North Powder River	TRACS-53
Pine Creek	TRACS-56
Upper Imnaha River	TRACS-75
Upper Wallowa River	TRACS-84
Habitat Conservation and Restoration	Watershed ID
Deep Creek	TRACS-09
Headwaters Silvies River	TRACS-26
Mill Creek-Walla Walla River	TRACS-47
Twelvemile Creek	TRACS-69
Upper Beaver Creek	TRACS-73
Upper North Fork Malheur River	TRACS-78
Upper Touchet River	TRACS-82
Upper Walla Walla River	TRACS-83
Wall Creek	TRACS-86
Both	Watershed ID
Lookingglass Creek	TRACS-41
Murderers Creek	TRACS-50
Upper North Fork Crooked River	TRACS-77
Wenaha River	TRACS-87

TRACS: Appendix N

Middle Rockies/Blue Mountains

TRACS Priority Watersheds Middle Rockies - Blue Mountains



TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Species in the Middle Rockies/Blue Mountains Ecoregion

Priority Vertebrates – Federally listed and candidate species are identified in **bold**.

Common Name	Scientific name
American Marten	<i>Martes americana</i>
Bighorn Sheep	<i>Ovis canadensis</i>
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>
Boreal Owl	<i>Aegolius funereus</i>
Clark's Nutcracker	<i>Nucifraga columbiana</i>
Columbia Spotted Frog	<i>Rana luteiventris</i>
Fisher	<i>Martes pennanti</i>
Flammulated Owl	<i>Otus flammeolus</i>
Gray Wolf	<i>Canis lupus</i>
Great Gray Owl	<i>Strix nebulosa</i>
Greater Sage-grouse	<i>Centrocercus urophasianus</i>
Lewis's Woodpecker	<i>Melanerpes lewis</i>
North American Wolverine	<i>Gulo gulo luscus</i>
Northern Goshawk	<i>Accipiter gentilis</i>
Pika	<i>Ochotona princeps</i>
Red-eyed Vireo	<i>Vireo olivaceus</i>
Rocky Mountain Tailed Frog	<i>Ascaphus montanus</i>
Silver-haired Bat	<i>Lasiorycteris noctivagans</i>
Spruce Grouse	<i>Falcapennis canadensis</i>
Upland Sandpiper	<i>Bartramia longicauda</i>
Wallowa Rosy-finch	<i>Leucosticte tephrocotis wallowa</i>
White-headed Woodpecker	<i>Picoides albolarvatus</i>
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>

Priority Socially and Economically Important Vertebrates

Common Name	Scientific name
Bighorn Sheep	<i>Ovis canadensis</i>
Elk	<i>Cervus elaphus</i>
Mule Deer	<i>Odocoileus hemionus</i>
White-tailed Deer	<i>Odocoileus virginianus</i>

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Plants – Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group
Henderson's Ricegrass	<i>Achnatherum hendersonii</i>	Vascular Plants
Wallowa Ricegrass	<i>Achnatherum wallowaensis</i>	Vascular Plants
Blue Mountain Onion	<i>Allium dictuon</i>	Vascular Plants
Hells Canyon Rockcress	<i>Arabis hastatula</i>	Vascular Plants
Blue Mountain Milk-vetch	<i>Astragalus tegetarioides</i>	Vascular Plants
Oregon Bolandra	<i>Bolandra oregana</i>	Vascular Plants
Upward-lobed Moonwort	<i>Botrychium ascendens</i>	Vascular Plants
Crenulate Moonwort	<i>Botrychium crenulatum</i>	Vascular Plants
Western Moonwort	<i>Botrychium hesperium</i>	Vascular Plants
Narrowleaf Moonwort	<i>Botrychium lineare</i>	Vascular Plants
Mountain Moonwort	<i>Botrychium montanum</i>	Vascular Plants
Peculiar Moonwort	<i>Botrychium paradoxum</i>	Vascular Plants
Stalked Moonwort	<i>Botrychium pedunculatum</i>	Vascular Plants
Peck's Mariposa Lily	<i>Calochortus longebarbatus</i> var. <i>peckii</i>	Vascular Plants
Green-band Mariposa Lily	<i>Calochortus macrocarpus</i> var. <i>maculosus</i>	Vascular Plants
Broad-fruit Mariposa Lily	<i>Calochortus nitidus</i>	Vascular Plants
Cordilleran sedge	<i>Carex cordillerana</i>	Vascular Plants
Idaho Sedge	<i>Carex idaho</i>	Vascular Plants
Fraternal Indian-paintbrush	<i>Castilleja fraterna</i>	Vascular Plants
Purple Alpine Paintbrush	<i>Castilleja rubida</i>	Vascular Plants
Davis' Fleabane	<i>Erigeron engelmannii</i> var. <i>davisii</i>	Vascular Plants
Diffuse Stickseed	<i>Hackelia diffusa</i> var. <i>diffusa</i>	Vascular Plants
Red-fruited Lomatium	<i>Lomatium erythrocarpum</i>	Vascular Plants
Greenman's Lomatium	<i>Lomatium greenmanii</i>	Vascular Plants
Colonial Luina	<i>Luina serpentina</i>	Vascular Plants
Membrane-leaf Monkeyflower	<i>Mimulus hymenophyllus</i>	Vascular Plants
Stalk-leaved Monkeyflower	<i>Mimulus patulus</i>	Vascular Plants
Macfarlane's Four-o'clock	<i>Mirabilis macfarlanei</i>	Vascular Plants
Hot-rock Penstemon	<i>Penstemon deustus</i> var. <i>variabilis</i>	Vascular Plants
Tiny-flower Phacelia	<i>Phacelia minutissima</i>	Vascular Plants
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants
Idaho Gooseberry	<i>Ribes oxycanthoides</i> ssp. <i>Irriguum</i>	Vascular Plants
Barton's Blackberry	<i>Rubus bartonianus</i>	Vascular Plants
Moss	<i>Schistidium cinclidodonteum</i>	Nonvascular Plants
Spalding's Campion	<i>Silene spaldingii</i>	Vascular Plants
Douglas Clover	<i>Trifolium douglasii</i>	Vascular Plants

TRACS: Appendix N

Middle Rockies/Blue Mountains

Socially/Economically/Culturally Important Plants

Common Name	Scientific Name	Group	Significance ¹
Black Tree Lichen	<i>Bryoria fremontii</i>	Lichens	T
Blue Camas, Common Camas	<i>Camassia quamash</i>	Vascular Plants	FS, T
Springbeauty	<i>Claytonia lanceolata</i>	Vascular Plants	T
Bitterroot	<i>Lewisia rediviva</i>	Vascular Plants	T
Canby's Biscuitroot	<i>Lomatium canbyi</i>	Vascular Plants	T
Cous Biscuitroot	<i>Lomatium cous</i>	Vascular Plants	T
Gray's Biscuitroot	<i>Lomatium grayi</i>	Vascular Plants	T
Morel	<i>Morchella sp.</i>	Fungi	FS, SFP, T
Yampah/Sa Wikt	<i>Perideridia gairdneri</i>	Vascular Plants	T
Bitter Cherry	<i>Prunus emarginata</i>	Vascular Plants	T
Chokecherry	<i>Prunus virginiana</i>	Vascular Plants	T
Black Huckleberry, Thinleaf Huckleberry	<i>Vaccinium membranaceum</i>	Vascular Plants	FS, SFP, T
Oval-leaf Blueberry	<i>Vaccinium ovalifolium</i>	Vascular Plants	FS, SFP, T
Tobacco Root	<i>Valeriana edulis</i>	Vascular Plants	FS, T

¹ FS = USFS Management Priority (past, present, or future); SFP = Economically Important Special Forest Product; T = Tribal Importance

Priority Invertebrates

No Priority Invertebrates were identified in this ecoregion.

Priority Habitats in the Middle Rockies/Blue Mountains Ecoregion

- Aspen
- Cottonwood Riparian
- Deciduous Riparian (Willows and Other Shrubs)
- Dry Meadows
- Eastside Late-seral Mixed Conifer
- Grassland/Native Bunch Grass
- Late-seral High-elevation Fir Forests
- Late-seral Ponderosa Pine
- Shrub Steppe
- Springs and Seeps
- Wet Meadows

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Watershed Descriptions

Deep Creek - TRACS-09—Habitat Conservation and Restoration Watershed

This watershed is split between the Middle Rockies/Blue Mountains Ecoregion and the Columbia Plateau Ecoregion.

This watershed is a priority because it is split with the Columbia Plateau Ecoregion, where it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

Priority Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Upland Sandpiper	<i>Bartramia longicauda</i>	2.45
Boreal Owl	<i>Aegolius funereus</i>	2.30
American Marten	<i>Martes americana</i>	1.81
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.39
Flammulated Owl	<i>Otus flammeolus</i>	1.34
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.34
Northern Goshawk	<i>Accipiter gentilis</i>	1.33
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.29
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.27
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.24
Great Gray Owl	<i>Strix nebulosa</i>	1.18

Priority Vertebrates – Columbia Plateau

This portion of the watershed is not important for any Priority Vertebrates.

Priority Social/Economic Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.21
Mule Deer	<i>Odocoileus hemionus</i>	1.00

Priority Social/Economic Vertebrates - Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	2.24
Mule Deer	<i>Odocoileus hemionus</i>	1.05

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Plants – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Group	Relative Abundance
Crenulate Moonwort	<i>Botrychium crenulatum</i>	Vascular Plants	4.87
Peck's Mariposa Lily	<i>Calochortus longebarbatus</i> var. <i>peckii</i>	Vascular Plants	4.74
Mountain Moonwort	<i>Botrychium montanum</i>	Vascular Plants	3.66

Priority Plants – Columbia Plateau

This portion of the watershed is not important for any Priority Plants.

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – Middle Rockies/Blue Mountains

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	1.81
Eastside Late-seral Mixed Conifer	1.60
Cottonwood Riparian	1.28

Priority Habitats – Columbia Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	5.01
Deciduous Riparian (Willows and Other Shrubs)	2.55

Eagle Creek - TRACS-13—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Habitats.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Socially and Economically Important Vertebrates, Priority Vertebrates, and Priority Habitats.

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Gray Wolf	<i>Canis lupus</i>	3.66
Rocky Mountain Tailed Frog	<i>Ascaphus montanus</i>	2.94
Spruce Grouse	<i>Falcapennis canadensis</i>	2.86
Pika	<i>Ochotona princeps</i>	1.66
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.64
American Marten	<i>Martes americana</i>	1.64
Columbia Spotted Frog	<i>Rana luteiventris</i>	1.56
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.52
Great Gray Owl	<i>Strix nebulosa</i>	1.38
Northern Goshawk	<i>Accipiter gentilis</i>	1.33
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.31
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.24
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.21
Flammulated Owl	<i>Otus flammeolus</i>	1.19
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.19
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.05

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.02
Mule Deer	<i>Odocoileus hemionus</i>	1.00

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Stalked Moonwort	<i>Botrychium pedunculatum</i>	Vascular Plants	4.12
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	3.37

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forest	2.03
Wet Meadows	1.97
Cottonwood Riparian	1.55
Eastside Late-seral Mixed Conifer	1.46
Deciduous Riparian - Willows and other shrubs	1.33
Aspen	1.27
Springs/Seeps	1.22

George Creek-Asotin Creek - TRACS-23—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 30 in the Region for integration of priorities, due a high RA value for Priority Plants, moderate RA values for Socially and Economically Important Vertebrates, Priority Vertebrates and Priority Habitats, and a moderately high biodiversity score.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Rocky Mountain Tailed Frog	<i>Ascaphus montanus</i>	3.24
Bighorn Sheep	<i>Ovis canadensis</i>	2.78
Boreal Owl	<i>Aegolius funereus</i>	2.26
Great Gray Owl	<i>Strix nebulosa</i>	1.35
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.18
Northern Goshawk	<i>Accipiter gentilis</i>	1.15
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.10
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.08
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.04

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Mule Deer	<i>Odocoileus hemionus</i>	1.01

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Broad-fruit Mariposa Lily	<i>Calochortus nitidus</i>	Vascular Plants	5.33
Green-band Lily	<i>Calochortus macrocarpus</i> var. <i>maculosus</i>	Vascular Plants	4.93
Idaho Gooseberry	<i>Ribes oxycanthoides</i> ssp. <i>Irriguum</i>	Vascular Plants	4.78
Spalding's Campion	<i>Silene spaldingii</i>	Vascular Plants	4.37
Stalk-leaved Monkeyflower	<i>Mimulus patulus</i>	Vascular Plants	3.46

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Grasslands/Native Bunchgrass	2.28
Late-seral High-elevation Fir Forest	1.79
Wet Meadows	1.54
Eastside Late-seral Mixed Conifer	1.01

TRACS: Appendix N

Middle Rockies/Blue Mountains

Headwaters North Fork John Day River - TRACS-25—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Socially and Economically Important Vertebrates.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Socially and Economically Important Vertebrates, other Priority Vertebrates, and Priority Habitats.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Boreal Owl	<i>Aegolius funereus</i>	2.39
Upland Sandpiper	<i>Bartramia longicauda</i>	1.93
American Marten	<i>Martes americana</i>	1.92
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.90
Great Gray Owl	<i>Strix nebulosa</i>	1.77
Pika	<i>Ochotona princeps</i>	1.74
Columbia Spotted Frog	<i>Rana luteiventris</i>	1.71
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.66
Northern Goshawk	<i>Accipiter gentilis</i>	1.61
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.52
Flammulated Owl	<i>Otus flammeolus</i>	1.51
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.47
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.37
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.11
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.04

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.27
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Mountain Moonwort	<i>Botrychium montanum</i>	Vascular Plants	2.27
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	1.86

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forest	2.83
Cottonwood Riparian	1.87
Wet Meadows	1.44
Deciduous Riparian (Willows and Other Shrubs)	1.37
Aspen	1.36
Springs and Seeps	1.32
Eastside Late-seral Mixed Conifer	1.11

Headwaters Silvies River - TRACS-26—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 12 in the Region for Aspen habitat.

This watershed is also important because it has high RA values for Socially and Economically Important Vertebrates and Priority Habitats, and a moderate RA value for Priority Vertebrates.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Upland Sandpiper	<i>Bartramia longicauda</i>	2.71
Bighorn Sheep	<i>Ovis canadensis</i>	2.48
American Marten	<i>Martes americana</i>	1.66
Pika	<i>Ochotona princeps</i>	1.59
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.46
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.27
Flammulated Owl	<i>Otus flammeolus</i>	1.25
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.23
Silver-haired Bat	<i>Lasiorycteris noctivagans</i>	1.13
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.12
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.06

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.09
Mule Deer	<i>Odocoileus hemionus</i>	1.01

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Crenulate Moonwort	<i>Botrychium crenulatum</i>	Vascular Plants	1.75

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Aspen	2.56
Wet Meadows	2.08
Springs and Seeps	2.02
Late-seral Ponderosa Pine	1.37
Eastside Late-seral Mixed Conifer	1.07
Shrub Steppe	1.06

TRACS: Appendix N

Middle Rockies/Blue Mountains

Lookingglass Creek - TRACS-41—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Eastside Late-seral Mixed-conifer habitat.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Socially and Economically Important Vertebrates, other Priority Vertebrates, and Priority Habitats, a moderate RA value for Priority Plants and a moderately high biodiversity score.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Gray Wolf	<i>Canis lupus</i>	4.00
Rocky Mountain Tailed Frog	<i>Ascaphus montanus</i>	3.34
Boreal Owl	<i>Aegolius funereus</i>	2.82
Spruce Grouse	<i>Falcapennis canadensis</i>	2.28
Northern Goshawk	<i>Accipiter gentilis</i>	2.00
Great Gray Owl	<i>Strix nebulosa</i>	1.80
Flammulated Owl	<i>Otus flammeolus</i>	1.68
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.67
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.66
American Marten	<i>Martes americana</i>	1.64
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.53
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.52
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.42
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.27
Columbia Spotted Frog	<i>Rana luteiventris</i>	1.01

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.36
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Western Moonwort	<i>Botrychium hesperium</i>	Vascular Plants	5.66
Mountain Moonwort	<i>Botrychium montanum</i>	Vascular Plants	3.53

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forest	2.81
Eastside Late-seral Mixed Conifer	2.44
Cottonwood Riparian	1.43
Late-seral Ponderosa Pine	1.42
Deciduous Riparian (Willows and Other Shrubs)	1.27

Lostine River - TRACS-43—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Plants and Socially and Economically Important Vertebrates.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Priority Plants, Socially and Economically Important Vertebrates, and other Priority Vertebrates, a high biodiversity score, and a moderate RA value for special habitats.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Spruce Grouse	<i>Falcapennis canadensis</i>	2.71
Bighorn Sheep	<i>Ovis canadensis</i>	2.61
Clark's Nutcracker	<i>Nucifraga columbiana</i>	2.04
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.85
Boreal Owl	<i>Aegolius funereus</i>	1.60
Pika	<i>Ochotona princeps</i>	1.58
American Marten	<i>Martes americana</i>	1.48
Northern Goshawk	<i>Accipiter gentilis</i>	1.46
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.42
Great Gray Owl	<i>Strix nebulosa</i>	1.37
Columbia Spotted Frog	<i>Rana luteiventris</i>	1.33
Flammulated Owl	<i>Otus flammeolus</i>	1.18
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.16

Priority Social/Economic Vertebrates

Although this watershed is in the Regional top 10 for Socially and Economically Important Vertebrates as a group, there are no ecoregional Priority Social/Economic Species with RA ≥ 1.

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Stalked Moonwort	<i>Botrychium pedunculosum</i>	Vascular Plants	5.57
Western Moonwort	<i>Botrychium hesperium</i>	Vascular Plants	5.41
Greenman's Lomatium	<i>Lomatium greenmanii</i>	Vascular Plants	4.75
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	4.14
Hells Canyon Rockcress	<i>Arabis hastatula</i>	Vascular Plants	3.91
Crenulate Moonwort	<i>Botrychium crenulatum</i>	Vascular Plants	3.00
Mountain Moonwort	<i>Botrychium montanum</i>	Vascular Plants	2.48

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forest	2.86
Wet Meadows	2.12

Mill Creek-Walla Walla River - TRACS-47—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Eastside Late-seral Mixed-conifer habitat.

This watershed is also important because it has high RA values for Socially and Economically Important Vertebrates and Priority Habitats, and moderate RA values for Priority Vertebrates.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Boreal Owl	<i>Aegolius funereus</i>	2.62
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.70
Great Gray Owl	<i>Strix nebulosa</i>	1.63
Northern Goshawk	<i>Accipiter gentilis</i>	1.63
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.57
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.50
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.48
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.46
Flammulated Owl	<i>Otus flammeolus</i>	1.33
American Marten	<i>Martes americana</i>	1.09

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.16
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Cordilleran sedge	<i>Carex cordillerana</i>	Vascular Plants	3.84

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Eastside Late-seral Mixed Conifer	2.37
Cottonwood Riparian	1.85
Deciduous Riparian (Willows and Other Shrubs)	1.79
Wet Meadows	1.41
Grasslands/Native Bunchgrass	1.04

TRACS: Appendix N

Middle Rockies/Blue Mountains

Minam River – TRACS 48 – Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Vertebrates.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Socially and Economically Important Vertebrates, other Priority Vertebrates, and Priority Habitats, a moderate RA value for Priority Plants, and a moderately high biodiversity score.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Gray Wolf	<i>Canis lupus</i>	4.07
Spruce Grouse	<i>Falciennis canadensis</i>	2.97
Boreal Owl	<i>Aegolius funereus</i>	2.25
Bighorn Sheep	<i>Ovis canadensis</i>	1.87
Northern Goshawk	<i>Accipiter gentilis</i>	1.78
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.77
Pika	<i>Ochotona princeps</i>	1.65
Great Gray Owl	<i>Strix nebulosa</i>	1.63
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.60
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.51
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.45
Flammulated Owl	<i>Otus flammeolus</i>	1.44
American Marten	<i>Martes americana</i>	1.39
Columbia Spotted Frog	<i>Rana luteiventris</i>	1.30
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.20
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.18
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.09

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.12

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Hot-rock Penstemon	<i>Penstemon deustus</i> var. <i>variabilis</i>	Vascular Plants	4.60
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	3.62
Idaho Gooseberry	<i>Ribes oxycanthoides</i> ssp. <i>irriguum</i>	Vascular Plants	3.35
Crenulate Moonwort	<i>Botrychium crenulatum</i>	Vascular Plants	1.34

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forest	2.96
Wet Meadows	1.77
Eastside Late-seral Mixed Conifer	1.67
Cottonwood Riparian	1.32
Deciduous Riparian (Willows and Other Shrubs)	1.23
Grasslands/Native Bunchgrass	1.13

Murderers Creek - TRACS-50—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is split between the Middle Rockies/Blue Mountains Ecoregion and the Columbia Plateau Ecoregion.

This is an Integrated Priorities watershed in the Middle Rockies/Blue Mountains Ecoregion because it meets the following criteria:

- One of the top 30 in the Region for integration of priorities, due to high RA values for Socially and Economically Important Vertebrates and Priority Habitats, moderate RA values for Priority Plant and Priority Vertebrates, and a moderate biodiversity score.

This is a Habitat Conservation and Restoration priority watershed in the Columbia Plateau Ecoregion because it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

Priority Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Upland Sandpiper	<i>Bartramia longicauda</i>	2.09
Pika	<i>Ochotona princeps</i>	1.73
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.59
Flammulated Owl	<i>Otus flammeolus</i>	1.53
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.53
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.52
American Marten	<i>Martes americana</i>	1.47
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.44
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.34
Northern Goshawk	<i>Accipiter gentilis</i>	1.23
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.21
Bighorn Sheep	<i>Ovis canadensis</i>	1.16

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Vertebrates – Columbia Plateau

This portion of the watershed is not important for any Priority Vertebrates.

Priority Social/Economic Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.34
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Social/Economic Vertebrates – Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Bighorn Sheep	<i>Ovis canadensis</i>	2.00
Elk	<i>Cervus canadensis</i>	1.87
Mule Deer	<i>Odocoileus hemionus</i>	1.05

Priority Plants – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Group	Relative Abundance
Tiny-flower Phacelia	<i>Phacelia minutissima</i>	Vascular Plants	5.08
Colonial Luina	<i>Luina serpentina</i>	Vascular Plants	4.92

Priority Plants – Columbia Plateau

This portion of the watershed is not important for any Priority Plants.

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – Middle Rockies/Blue Mountains

Priority Habitat	Relative Abundance
Aspen	2.01
Late-seral Ponderosa Pine	1.77
Springs and Seeps	1.64
Eastside Late-seral Mixed Conifer	1.61
Deciduous Riparian (Willows and Other Shrubs)	1.02

Priority Habitats – Columbia Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	3.43
Deciduous Riparian (Willows and Other Shrubs)	2.65
Grasslands/Native Bunchgrass	1.66

TRACS: Appendix N

Middle Rockies/Blue Mountains

North Powder River - TRACS-53—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Socially and Economically Important Vertebrates, and moderate RA values for other Priority Vertebrates, Priority Plants, and Priority Habitats.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Boreal Owl	<i>Aegolius funereus</i>	2.42
Columbia Spotted Frog	<i>Rana luteiventris</i>	1.93
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.83
Northern Goshawk	<i>Accipiter gentilis</i>	1.61
Pika	<i>Ochotona princeps</i>	1.60
Great Gray Owl	<i>Strix nebulosa</i>	1.54
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.45
American Marten	<i>Martes americana</i>	1.43
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.35
Flammulated Owl	<i>Otus flammeolus</i>	1.34
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.18
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.15
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.02

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.13
Mule Deer	<i>Odocoileus hemionus</i>	1.00

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Upward-lobed Moonwort	<i>Botrychium ascendens</i>	Vascular Plants	4.62
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	2.65
Mountain Moonwort	<i>Botrychium montanum</i>	Vascular Plants	2.22

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forest	2.61
Aspen	1.23
Cottonwood Riparian	1.19
Deciduous Riparian (Willows and Other Shrubs)	1.13

Pine Creek - TRACS-56—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Habitats.

This watershed is also important because it has high RA values for Socially and Economically Important Vertebrates, other Priority Vertebrates, and Priority Habitats.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
North American Wolverine	<i>Gulo gulo luscus</i>	4.23
Rocky Mountain Tailed Frog	<i>Ascaphus montanus</i>	2.64
Spruce Grouse	<i>Falcapennis canadensis</i>	2.62
Pika	<i>Ochotona princeps</i>	1.58
Columbia Spotted Frog	<i>Rana luteiventris</i>	1.55
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.45
American Marten	<i>Martes americana</i>	1.35
Great Gray Owl	<i>Strix nebulosa</i>	1.15
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.08
Northern Goshawk	<i>Accipiter gentilis</i>	1.08
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.05
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.05

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Plants - Federally Listed and Candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Oregon Bolandra	<i>Bolandra oregana</i>	Vascular Plants	3.75
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	1.18

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forest	1.76
Grasslands/Native Bunchgrass	1.45
Wet Meadows	1.41
Deciduous Riparian (Willows and Other Shrubs)	1.38
Cottonwood Riparian	1.33
Springs and Seeps	1.29
Eastside Late-seral Mixed Conifer	1.22
Shrub Steppe	1.12
Aspen	1.10
Late-seral Ponderosa Pine	1.06

Twelvemile Creek - TRACS-69—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

This watershed is also important because it has a moderate RA value for Priority Habitats.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.29
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.11
Flammulated Owl	<i>Otus flammeolus</i>	1.08
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.00

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.14
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Plants

This watershed is not important for any Priority Plants.

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	2.85
Wet Meadows	1.41
Shrub Steppe	1.37

Upper Beaver Creek - TRACS-73—Habitat Conservation and Restoration Watershed

This watershed is split between the Middle Rockies/Blue Mountains Ecoregion and the Columbia Plateau Ecoregion.

This watershed is a priority because it is split with the Columbia Plateau Ecoregion, where it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

This watershed is also important because it has high RA values for Priority Plants.

Priority Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Boreal Owl	<i>Aegolius funereus</i>	2.06
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.94
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.37
Flammulated Owl	<i>Otus flammeolus</i>	1.24
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.24
American Marten	<i>Martes americana</i>	1.23
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.02

Priority Vertebrates – Columbia Plateau

This portion of the watershed is not important for any Priority Vertebrates.

Priority Social/Economic Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.22
Mule Deer	<i>Odocoileus hemionus</i>	1.00

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Social/Economic Vertebrates – Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.70
Mule Deer	<i>Odocoileus hemionus</i>	1.05

Priority Plants – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Group	Relative Abundance
Henderson's Ricegrass	<i>Achnatherum hendersonii</i>	Vascular Plants	4.99
Crenulate Moonwort	<i>Botrychium crenulatum</i>	Vascular Plants	3.92
Mountain Moonwort	<i>Botrychium montanum</i>	Vascular Plants	3.39

Priority Plants – Columbia Plateau

Common Name	Scientific Name	Group	Relative Abundance
Henderson's Ricegrass	<i>Achnatherum hendersonii</i>	Vascular Plants	4.99

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – Middle Rockies/Blue Mountains

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	2.18
Deciduous Riparian (Willows and Other Shrubs)	1.41

Priority Habitats – Columbia Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	3.62
Deciduous Riparian (Willows and Other Shrubs)	3.04
Shrub Steppe	1.14

TRACS: Appendix N

Middle Rockies/Blue Mountains

Upper Imnaha River - TRACS-75—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Socially and Economically Important Vertebrates and Priority Habitats.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Priority Plants, Socially and Economically Important Vertebrates, other Priority Vertebrates, and Priority Habitats, and a moderately high biodiversity score.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Spruce Grouse	<i>Falcapennis canadensis</i>	2.95
Rocky Mountain Tailed Frog	<i>Ascaphus montanus</i>	2.90
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.81
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.80
American Marten	<i>Martes americana</i>	1.79
Pika	<i>Ochotona princeps</i>	1.65
Northern Goshawk	<i>Accipiter gentilis</i>	1.60
Great Gray Owl	<i>Strix nebulosa</i>	1.58
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.53
Flammulated Owl	<i>Otus flammeolus</i>	1.42
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.40
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.38
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.19
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.13
Columbia Spotted Frog	<i>Rana luteiventris</i>	1.09

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.13

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Fraternal Indian-paintbrush	<i>Castilleja fraterna</i>	Vascular Plants	5.29
Tiny-flower Phacelia	<i>Phacelia minutissima</i>	Vascular Plants	4.90
Cordilleran Sedge	<i>Carex cordillerana</i>	Vascular Plants	3.99
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	3.05
Oregon Bolandra	<i>Bolandra oregana</i>	Vascular Plants	2.56

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
High-elevation Fir Forest	2.69
Wet Meadows	2.19
Cottonwood Riparian	1.95
Springs and Seeps	1.82
Late-seral Mixed Conifer	1.48
Deciduous Riparian (Willows and Other Shrubs)	1.46

Upper North Fork Crooked River - TRACS-77—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is split between the Middle Rockies/Blue Mountains Ecoregion and the Columbia Plateau Ecoregion.

This is an Integrated Priorities watershed in the Middle Rockies/Blue Mountains Ecoregion because it meets the following criteria:

- One of the top 10 in the Region for Priority Habitats.

This watershed is also important because it has high RA values for Socially and Economically Important Vertebrates and Priority Habitats, and moderate RA values for other Priority Vertebrates and Priority Plants.

This is a Habitat Conservation and Restoration watershed in the Columbia Plateau Ecoregion because it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

Priority Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Upland Sandpiper	<i>Bartramia longicauda</i>	2.69
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	2.04
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.51
Great Gray Owl	<i>Strix nebulosa</i>	1.31
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.30
Northern Goshawk	<i>Accipiter gentilis</i>	1.26
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.24
Flammulated Owl	<i>Otus flammeolus</i>	1.23
Boreal Owl	<i>Aegolius funereus</i>	1.10
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.09
Silver-haired Bat	<i>Lasiurus noctivagans</i>	1.06

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Vertebrates – Columbia Plateau

This portion of the watershed is not important for any Priority Vertebrates.

Priority Social/Economic Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.14
Mule Deer	<i>Odocoileus hemionus</i>	1.00

Priority Social/Economic Vertebrates – Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	2.14
Mule Deer	<i>Odocoileus hemionus</i>	1.04

Priority Plants – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Group	Relative Abundance
Peck's Mariposa Lily	<i>Calochortus longebarbatus</i> var. <i>peckii</i>	Vascular Plants	4.52
Henderson's Ricegrass	<i>Achnatherum hendersonii</i>	Vascular Plants	3.46
Crenulate Moonwort	<i>Botrychium crenulatum</i>	Vascular Plants	2.34

Priority Plants – Columbia Plateau

This portion of the watershed is not important for any Priority Plants.

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – Middle Rockies/Blue Mountains

Priority Habitat	Relative Abundance
Cottonwood Riparian	2.57
Deciduous Riparian (Willows and Other Shrubs)	2.15
Late-seral Ponderosa Pine	1.78
Eastside Late-seral Mixed Conifer	1.47
Wet Meadows	1.36
Aspen	1.24
Springs and Seeps	1.21

Priority Habitats - Columbia Plateau

Priority Habitat	Relative Abundance
Late-seral Ponderosa Pine	4.95
Deciduous Riparian (Willows and Other Shrubs)	3.63

TRACS: Appendix N

Middle Rockies/Blue Mountains

Upper North Fork Malheur River - TRACS-78—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 12 in the Region for Aspen habitat.

This watershed is also important because it has a high RA value for Priority Habitats and moderate RA values for Socially and Economically Important Vertebrates and other Priority Vertebrates.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Boreal Owl	<i>Aegolius funereus</i>	2.22
American Marten	<i>Martes americana</i>	1.67
Pika	<i>Ochotona princeps</i>	1.67
Great Gray Owl	<i>Strix nebulosa</i>	1.38
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.36
Upland Sandpiper	<i>Bartramia longicauda</i>	1.35
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.20
Flammulated Owl	<i>Otus flammeolus</i>	1.18
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.18
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.13
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.10
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.02

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.15
Mule Deer	<i>Odocoileus hemionus</i>	1.00

Priority Plants

This watershed is not important for any Priority Plants.

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Aspen	2.63
Late-seral High-elevation Fir Forest	1.35
Late-seral Ponderosa Pine	1.19
Shrub Steppe	1.11
Springs/Seeps	1.03

TRACS: Appendix N

Middle Rockies/Blue Mountains

Upper Touchet River - TRACS-82—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Eastside Late-seral Mixed-conifer habitat.

This watershed also has moderate RA values for Socially and Economically Important Vertebrates, other Priority Vertebrates, and Priority Habitats.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Rocky Mountain Tailed Frog	<i>Ascaphus montanus</i>	3.53
Boreal Owl	<i>Aegolius funereus</i>	2.68
Great Gray Owl	<i>Strix nebulosa</i>	1.64
Northern Goshawk	<i>Accipiter gentilis</i>	1.59
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.47
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.46
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.43
Flammulated Owl	<i>Otus flammeolus</i>	1.20
Columbia Spotted Frog	<i>Rana luteiventris</i>	1.14

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.21
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Plants

This watershed is not important for any Priority Plants.

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Eastside Late-seral Mixed Conifer	2.27
Cottonwood Riparian	1.67
Deciduous Riparian (Willows and Other Shrubs)	1.61
Wet Meadows	1.26

TRACS: Appendix N

Middle Rockies/Blue Mountains

Upper Walla Walla River - TRACS-83—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Eastside Late-seral Mixed-conifer habitat.

This watershed is also important because it has high RA values for Socially and Economically Important Vertebrates and other Priority Vertebrates, and a moderate RA value for Priority Habitats.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Gray Wolf	<i>Canis lupus</i>	3.45
Boreal Owl	<i>Aegolius funereus</i>	2.60
Northern Goshawk	<i>Accipiter gentilis</i>	1.79
Great Gray Owl	<i>Strix nebulosa</i>	1.67
American Marten	<i>Martes americana</i>	1.66
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.60
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.57
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.55
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.54
Flammulated Owl	<i>Otus flammeolus</i>	1.52
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.35
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.20

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.28
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Cordilleran Sedge	<i>Carex cordillerana</i>	Vascular Plants	2.92

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Habitats

Priority Habitat	Relative Abundance
Eastside Late-seral Mixed Conifer	2.47
Late-seral High-elevation Fir Forest	1.81
Wet Meadows	1.36
Cottonwood Riparian	1.34
Deciduous Riparian (Willows and Other Shrubs)	1.25

Upper Wallowa River - TRACS-84—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Plants.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Priority Plants and Socially and Economically Important Vertebrates, moderate RA values for Priority Habitats and other Priority Vertebrates, and a moderately high biodiversity score.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Bighorn Sheep	<i>Ovis canadensis</i>	2.91
Spruce Grouse	<i>Falcapennis canadensis</i>	2.06
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.77
Columbia Spotted Frog	<i>Rana luteiventris</i>	1.52
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.47
Pika	<i>Ochotona princeps</i>	1.39
American Marten	<i>Martes americana</i>	1.04

Priority Social/Economic Vertebrates

Although this is a high priority watershed for Socially and Economically Important Vertebrates as a group, there are no ecoregional priority Social/Economic Vertebrates with RA ≥ 1 .

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Purple Alpine Paintbrush	<i>Castilleja rubida</i>	Vascular Plants	5.26
Upward-lobed Moonwort	<i>Botrychium ascendens</i>	Vascular Plants	4.57
Fraternal Indian-paintbrush	<i>Castilleja fraterna</i>	Vascular Plants	4.33
Greenman's Lomatium	<i>Lomatium greenmanii</i>	Vascular Plants	4.30
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	3.11
Crenulate Moonwort	<i>Botrychium crenulatum</i>	Vascular Plants	2.70
Spalding's Campion	<i>Silene spaldingii</i>	Vascular Plants	2.20
Mountain Moonwort	<i>Botrychium montanum</i>	Vascular Plants	1.48
Hells Canyon Rockcress	<i>Arabis hastatula</i>	Vascular Plants	1.10

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forest	2.04
Wet Meadows	1.92
Grasslands/Native Bunchgrass	1.27

Wall Creek - TRACS-86—Habitat Conservation and Restoration Watershed

This watershed is split between the Middle Rockies/Blue Mountains Ecoregion and the Columbia Plateau Ecoregion.

This watershed is a priority because it is split with the Columbia Plateau Ecoregion, where it meets the following criteria:

- One of the top 10 in the Region for Late-seral Ponderosa Pine habitat.

This watershed is also important because it has high RA values for Socially and Economically Important Vertebrates.

Priority Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.40
Great Gray Owl	<i>Strix nebulosa</i>	1.39
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	1.33
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1.29
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.28
Flammulated Owl	<i>Otus flammeolus</i>	1.12
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.12
Silver-haired Bat	<i>Lasiurus noctivagus</i>	1.04

Priority Vertebrates – Columbia Plateau

No Priority Vertebrates occur in this portion of the watershed.

Priority Social/Economic Vertebrates – Middle Rockies/Blue Mountains

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.26
Mule Deer	<i>Odocoileus hemionus</i>	1.01

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Social/Economic Vertebrates – Columbia Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	2.05
Mule Deer	<i>Odocoileus hemionus</i>	1.05

Priority Plants

This watershed is not important for any Priority Plants.

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – Middle Rockies/Blue Mountains

Priority Habitat	Relative Abundance
Deciduous Riparian (Willows and Other Shrubs)	1.66
Late-seral Ponderosa Pine	1.31
Cottonwood Riparian USFS	1.26

Priority Habitats – Columbia Plateau

Priority Habitat	Relative Abundance
Deciduous Riparian (Willows and Other Shrubs)	3.49
Late-seral Ponderosa Pine	2.55
Grasslands/Native Bunchgrass	1.95

TRACS: Appendix N

Middle Rockies/Blue Mountains

Wenaha River - TRACS-87—Both an Integrated Priorities and Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Eastside Late-seral Mixed-conifer habitat.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Priority Plants, Socially and Economically Important Vertebrates, Priority Vertebrates, and Priority Habitats, and a moderately high biodiversity score.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Rocky Mountain Tailed Frog	<i>Ascaphus montanus</i>	3.16
Boreal Owl	<i>Aegolius funereus</i>	2.77
Northern Goshawk	<i>Accipiter gentilis</i>	1.86
Great Gray Owl	<i>Strix nebulosa</i>	1.81
White-headed Woodpecker	<i>Picoides albolarvatus</i>	1.63
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.59
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.58
Red-eyed Vireo	<i>Vireo olivaceus</i>	1.57
Flammulated Owl	<i>Otus flammeolus</i>	1.47
American Marten	<i>Martes americana</i>	1.26
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1.14

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.25
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Blue Mountain Onion	<i>Allium dictyon</i>	Vascular Plants	5.08
Diffuse Stickseed	<i>Hackelia diffusa</i> var. <i>diffusa</i>	Vascular Plants	5.08
Green-band Mariposa Lily	<i>Calochortus macrocarpus</i> var. <i>maculosus</i>	Vascular Plants	3.76
Oregon Bolandra	<i>Bolandra oregana</i>	Vascular Plants	2.92
Cordilleran Sedge	<i>Carex cordillerana</i>	Vascular Plants	1.86
Douglas Clover	<i>Trifolium douglasii</i>	Vascular Plants	1.78

TRACS: Appendix N

Middle Rockies/Blue Mountains

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Eastside Late-seral Mixed Conifer	2.43
Late-seral High-elevation Fir Forest	2.08
Cottonwood Riparian	1.28
Deciduous Riparian (Willows and Other Shrubs)	1.14
Grasslands/Native Bunchgrass	1.09

TRACS: Appendix O

North Cascades

North Cascades Ecoregional Priorities

The mountainous North Cascades Ecoregion extends south from Toba Inlet in British Columbia to just south of Snoqualmie Pass in Washington State. It encompasses the North Cascades National Park. Much of ecoregion is relatively intact and dominated by semi-natural or natural vegetation. Additional information on this ecoregion can be found in the assessment developed by The Nature Conservancy at:

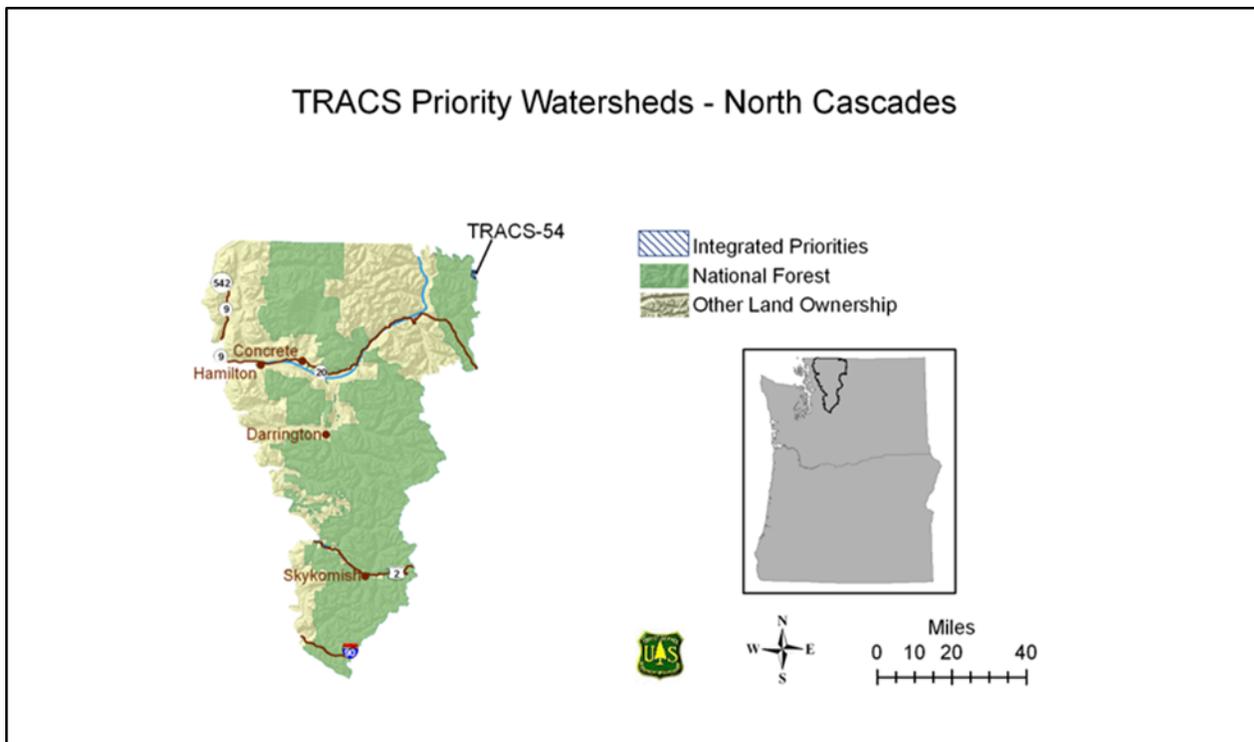
<http://science.natureconservancy.ca/initiatives/blueprints/northcascades.php>

Forests: Mt. Baker-Snoqualmie, Okanogan-Wenatchee

Management Class	Definition	% of Ecoregion
Preservation	Long-term preservation by Act of Congress	28
Conservation Emphasis	Preservation by Forest Plan land allocation	12
Managed Conservation	Conservation areas with limited management	9
Managed Multiple Objectives	Managed areas with multiple resource objectives	2
Active Management	Active management of multiple resources	2
Recreation Emphasis	Recreation emphasis areas	<1
Non-Forest Service	Non-Forest Service lands	46

Priority Watersheds in the North Cascades Ecoregion

Integrated Priorities	Watershed ID
Pasayten River-Similkameen River	TRACS-54



TRACS: Appendix O

North Cascades

Priority Species in the North Cascades Ecoregion.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific name
American Pipit	<i>Anthus rubescens</i>
Black Swift	<i>Cypseloides niger</i>
Brown (Grizzly) Bear	<i>Ursus arctos</i>
Canada Lynx	<i>Lynx canadensis</i>
Cascades Frog	<i>Rana cascadae</i>
Fisher	<i>Martes pennanti</i>
Gray Wolf	<i>Canis lupus</i>
Harlequin Duck	<i>Histrionicus histrionicus</i>
Mountain Goat	<i>Oreamnos americanus</i>
North American Wolverine	<i>Gulo gulo luscus</i>
Northern Bog Lemming	<i>Synaptomys borealis</i>
Northern Spotted Owl	<i>Strix occidentalis caurina</i>
Pika	<i>Ochotona princeps</i>

Priority Socially and Economically Important Vertebrates

Common Name	Scientific name
Black-tailed Deer	<i>Odocoileus hemionus columbianus</i>
Elk	<i>Cervus elaphus</i>
Mule Deer	<i>Odocoileus hemionus</i>

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group
Upward-lobed Moonwort	<i>Botrychium ascendens</i>	Vascular Plants
Lichen	<i>Lobaria linita</i>	Lichens
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants
Choriso Bog-orchid	<i>Platanthera chorisiana</i>	Vascular Plants
Lichen	<i>Pseudocyphellaria rainierensis</i>	Lichens
Luminous Moss	<i>Schistostega pennata</i>	Nonvascular Plants
Moss	<i>Tetraphis geniculata</i>	Nonvascular Plants

TRACS: Appendix O

North Cascades

Socially/Economically/Culturally Important Plants

Common Name	Scientific Name	Group	Significance ¹
Blue Camas, Common Camas	<i>Camassia quamash</i>	Vascular Plants	FS, T
Hazelnut	<i>Corylus cornuta</i>	Vascular Plants	FS, T
Barestem Lomatium	<i>Lomatium nudicaule</i>	Vascular Plants	T
Morel	<i>Morchella</i> sp.	Fungi	FS, SFP, T
Chokecherry	<i>Prunus virginiana</i>	Vascular Plants	T
Hardstem Bulrush	<i>Schoenoplectus acutus</i>	Vascular Plants	T
Blue-leaved Huckleberry, Cascade Bilberry	<i>Vaccinium deliciosum</i>	Vascular Plants	FS, SFP, T
Black Huckleberry, Thinleaf Huckleberry	<i>Vaccinium membranaceum</i>	Vascular Plants	FS, SFP, T

¹ FS = USFS Management Priority (past, present, or future); SFP = Economically Important Special Forest Product; T = Tribal Importance

Priority Invertebrates

No Priority Invertebrates were identified in this ecoregion.

Priority Habitats in the North Cascades Ecoregion

Cottonwood Riparian

Deciduous Riparian (Willows and Other Shrubs)

Late-seral High-elevation Fir Forests

Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock

Springs and Seeps

TRACS: Appendix O

North Cascades

Priority Watershed Description

Pasayten River-Similkameen River - TRACS-54—Integrated Priorities Watershed

This watershed is split between the North Cascades Ecoregion and the Okanagan Ecoregion.

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Socially and Economically Important Vertebrates.

This watershed is also important because it has a high RA value for Priority Vertebrates.

Priority Vertebrates – North Cascades- Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Canada Lynx	<i>Lynx canadensis</i>	5.67
Gray Wolf	<i>Canis lupus</i>	3.59
Mountain Goat	<i>Oreamnos americanus</i>	2.65
American Pipit	<i>Anthus rubescens</i>	2.54
Northern Bog Lemming	<i>Synaptomys borealis</i>	1.50
North American Wolverine	<i>Gulo gulo luscus</i>	1.32
Pika	<i>Ochotona princeps</i>	1.26

Priority Vertebrates – Okanagan - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Northern Bog Lemming	<i>Synaptomys borealis</i>	2.96
Mountain Goat	<i>Oreamnos americanus</i>	2.95
Gray Wolf	<i>Canis lupus</i>	2.60
American Pipit	<i>Anthus rubescens</i>	2.58
American Marten	<i>Martes americana</i>	2.15
Boreal Owl	<i>Aegolius funereus</i>	1.81
Canada Lynx	<i>Lynx canadensis</i>	1.72
North American Wolverine	<i>Gulo gulo luscus</i>	1.58
Northern Goshawk	<i>Accipiter gentilis</i>	1.58
Spruce Grouse	<i>Falci pennis canadensis</i>	1.56
Boreal Chickadee	<i>Poecile hudsonica</i>	1.34

Priority Social/Economic Vertebrates – North Cascades

Common Name	Scientific Name	Relative Abundance
Mule Deer	<i>Odocoileus hemionus</i>	1.01

TRACS: Appendix O

North Cascades

Priority Social/Economic Vertebrates – Okanagan

Common Name	Scientific Name	Relative Abundance
Dusky Grouse	<i>Dendragapus obscurus</i>	1.51
Ruffed Grouse	<i>Bonasa umbellus</i>	1.22
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Plants – North Cascades - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	3.83

Priority Plants – Okanagan - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	2.91

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – North Cascades

Priority Habitat	Relative Abundance
Late-Seral High-Elevation Fir Forests	1.21

Priority Habitats – Okanagan

This portion of the watershed is not important for any Priority Habitats.

TRACS: Appendix P

Okanagan

Okanagan Eco-regional Priorities

The Okanagan Eco-region includes south-central British Columbia and north-central Washington. The Washington portion of the Okanagan Eco-region extends from the Cascade Mountains crest east to the Selkirk Mountains. The southwestern border of the eco-region follows Sawtooth Ridge northeast of Lake Chelan. The Methow and Okanogan valleys are included, as are the Okanogan Highlands east to the Colville and Spokane valleys. Conifer forests dominate the mountain ridges and low hills in this eco-region, while valleys and lowlands are often non-forested. The conifer forests are more open and less continuous, consisting of smaller stands than forests west of the Cascade crest and in the Canadian Rockies. Douglas-fir and Ponderosa Pine are the eco-region's characteristic forests. They transition to shrub-steppe in the low broad valleys in the eastern part of the eco-region and to grasslands in the western part. Additional information about this eco-region can be found in the assessment developed by The Nature Conservancy at: <http://science.natureconservancy.ca/initiatives/blueprints/okanagan.php>

Forests: Colville, Okanogan-Wenatchee

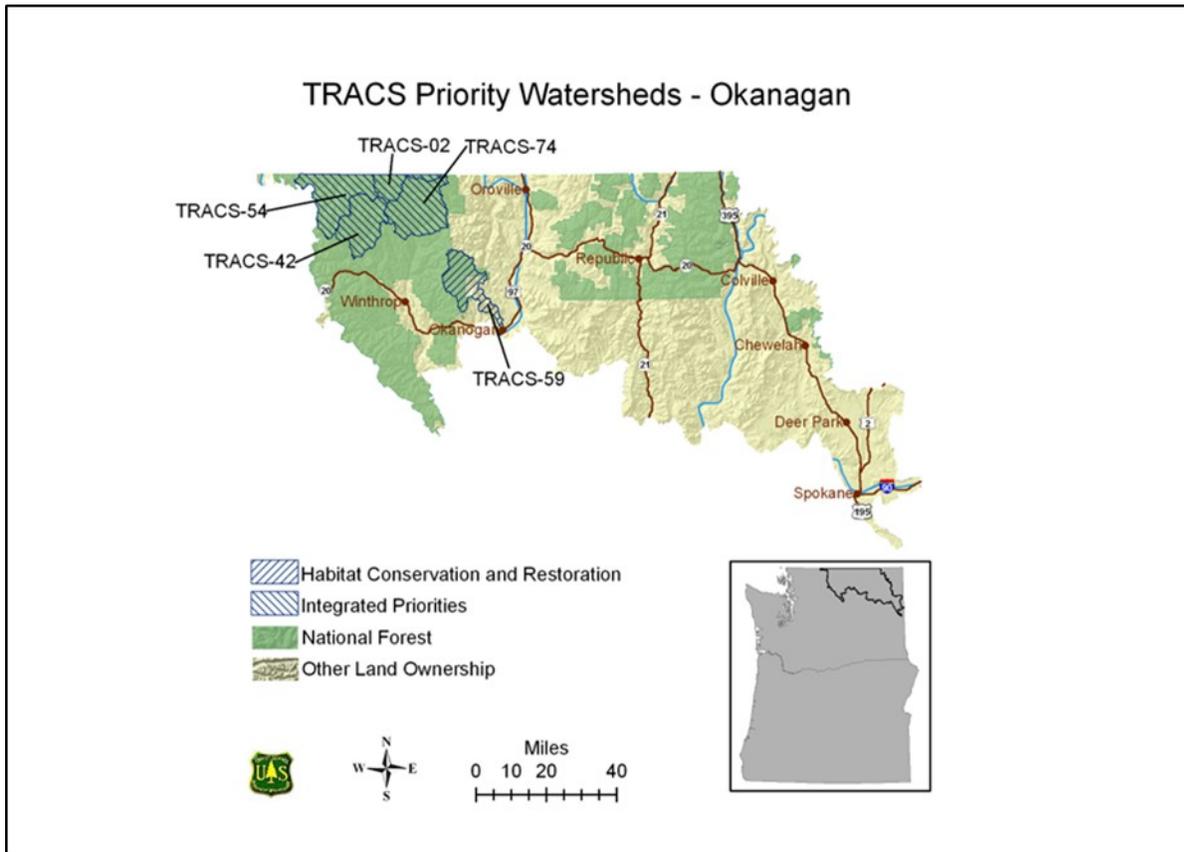
Management Class	Definition	% of Eco-region
Preservation	Long-term preservation by Act of Congress	9
Conservation Emphasis	Preservation by Forest Plan land allocation	8
Managed Conservation	Conservation areas with limited management	2
Managed Multiple Objectives	Managed areas with multiple resource objectives	8
Active Management	Active management of multiple resources	7
Recreation Emphasis	Recreation emphasis areas	<1
Non-Forest Service	Non-Forest Service lands	64

Priority Watersheds in the Okanagan Eco-region

Integrated Priorities	Watershed ID
Ashnola River	TRACS-02
Lost River	TRACS-42
Pasayten River-Similkameen River	TRACS-54
Upper Chewuch River	TRACS-74
Habitat Conservation and Restoration	Watershed ID
Salmon Creek	TRACS-59

TRACS: Appendix P

Okanagan



Priority Species in the Okanagan Ecoregion

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific name
American Marten	<i>Martes americana</i>
American Pipit	<i>Anthus rubescens</i>
Bighorn Sheep	<i>Ovis canadensis</i>
Boreal Chickadee	<i>Poecile hudsonica</i>
Boreal Owl	<i>Aegolius funereus</i>
Brown (Grizzly) Bear	<i>Ursus arctos</i>
Canada Lynx	<i>Lynx canadensis</i>
Fisher	<i>Martes pennanti</i>
Gray Wolf	<i>Canis lupus</i>
Moose	<i>Alces americanus</i>
Mountain Goat	<i>Oreamnos americanus</i>
North American Wolverine	<i>Gulo gulo luscus</i>
Northern Bog Lemming	<i>Synaptomys borealis</i>
Northern Goshawk	<i>Accipiter gentilis</i>
Northern Waterthrush	<i>Seiurus noveboracensis</i>
Spruce Grouse	<i>Falcapennis canadensis</i>

TRACS: Appendix P

Okanagan

Priority Socially and Economically Important Vertebrates

Common Name	Scientific name
Dusky Grouse	<i>Dendragapus obscurus</i>
Mule Deer	<i>Odocoileus hemionus</i>
Ruffed Grouse	<i>Bonasa umbellus</i>

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group
Upward-lobed Moonwort	<i>Botrychium ascendens</i>	Vascular Plants
Crenulate Moonwort	<i>Botrychium crenulatum</i>	Vascular Plants
Narrowleaf Moonwort	<i>Botrychium lineare</i>	Vascular Plants
Peculiar Moonwort	<i>Botrychium paradoxum</i>	Vascular Plants
Moss	<i>Bryum calobryoides</i>	Nonvascular Plants
Salish's Daisy	<i>Erigeron salishii</i>	Vascular Plants
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants
Northern Blue-eyed-grass	<i>Sisyrinchium septentrionale</i>	Vascular Plants

TRACS: Appendix P

Okanagan

Socially/Economically/Socially Important Plants

Common Name	Scientific Name	Group	Significance ¹
Serviceberry, Saskatoon Berry	<i>Amelanchier alnifolia</i>	Vascular Plants	T
Oregon Grape	<i>Berberis aquifolium</i> , <i>B. nervosa</i>	Vascular Plants	SPF, T
Blue Camas, Common Camas	<i>Camassia quamash</i>	Vascular Plants	FS, T
Chanterelle	<i>Cantharellus formosus</i> , <i>C. cascadensis</i> , <i>C. cibarius?</i>	Fungi	FS, SFP, T
Springbeauty	<i>Claytonia lanceolata</i>	Vascular Plants	T
Hazelnut	<i>Corylus cornuta</i>	Vascular Plants	FS, T
Cascara	<i>Frangula purshiana</i>	Vascular Plants	FS, SFP, T
Bitterroot	<i>Lewisia rediviva</i>	Vascular Plants	T
Canby's Biscuitroot	<i>Lomatium canbyi</i>	Vascular Plants	T
Cous Biscuitroot	<i>Lomatium cous</i>	Vascular Plants	T
Gray's Biscuitroot	<i>Lomatium grayi</i>	Vascular Plants	T
Barestem Lomatium	<i>Lomatium nudicaule</i>	Vascular Plants	T
Morel	<i>Morchella</i> sp.	Fungi	FS, SFP, T
Wokas	<i>Nuphar lutea</i> ssp. <i>polysepala</i>	Vascular Plants	T
Yampah/Sa Wikt	<i>Perideridia gairdneri</i>	Vascular Plants	T
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	FS, T
Bitter Cherry	<i>Prunus emarginata</i>	Vascular Plants	T
Chokecherry	<i>Prunus virginiana</i>	Vascular Plants	T
Hardstem Bulrush	<i>Schoenoplectus acutus</i>	Vascular Plants	T
Softstem Bulrush	<i>Schoenoplectus tabernaemontani</i>	Vascular Plants	T
Western Red Cedar	<i>Thuja plicata</i>	Vascular Plants	T
Blue-leaved Huckleberry, Cascade Bilberry	<i>Vaccinium deliciosum</i>	Vascular Plants	FS, SFP, T
Black Huckleberry, Thinleaf Huckleberry	<i>Vaccinium membranaceum</i>	Vascular Plants	FS, SFP, T
Tobacco Root	<i>Valeriana edulis</i>	Vascular Plants	FS, T
High-bush Cranberry	<i>Viburnum edule</i>	Vascular Plants	T
Beargrass	<i>Xerophyllum tenax</i>	Vascular Plants	FS, SFP, T

¹ FS = USFS Management Priority (past, present, or future); SFP = Economically Important Special Forest Product; T = Tribal Importance

Priority Invertebrates

No Priority Invertebrates were identified in this ecoregion.

TRACS: Appendix P

Okanagan

Priority Habitats in the Okanagan Ecoregion

Aspen
 Deciduous Riparian (Willows and Other Shrubs)
 Dry Meadows
 Eastside Late-seral Mixed Conifer
 Grassland/Native Bunch Grass
 Marshes
 Shrub Steppe
 Springs and Seeps

Priority Watershed Descriptions

Ashnola River - TRACS-02—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Vertebrates.

This watershed is also important because it has a high RA value for Priority Vertebrates and a moderately high RA value for Priority Plants.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Brown (Grizzly) Bear	<i>Ursus arctos</i>	3.15
American Pipit	<i>Anthus rubescens</i>	3.09
Bighorn Sheep	<i>Ovis canadensis</i>	3.06
Mountain Goat	<i>Oreamnos americanus</i>	2.99
Northern Bog Lemming	<i>Synaptomys borealis</i>	2.84
Gray Wolf	<i>Canis lupus</i>	2.55
American Marten	<i>Martes americana</i>	2.09
Boreal Chickadee	<i>Poecile hudsonica</i>	1.93
Canada Lynx	<i>Lynx canadensis</i>	1.74
Boreal Owl	<i>Aegolius funereus</i>	1.73
North American Wolverine	<i>Gulo gulo luscus</i>	1.63
Northern Goshawk	<i>Accipiter gentilis</i>	1.51

Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Dusky Grouse	<i>Dendragapus obscurus</i>	1.45
Mule Deer	<i>Odocoileus hemionus</i>	1.01

TRACS: Appendix P

Okanagan

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Salish's Daisy	<i>Erigeron salishii</i>	Vascular Plants	5.20
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	3.47

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Marshes	2.60
Deciduous Riparian (Willows and Other Shrubs)	1.73

Lost River - TRACS-42—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Vertebrates.

This watershed is also important because it has a high RA value for Priority Vertebrates, a moderately high RA value for Socially and Economically Important Vertebrates, and a moderately high biodiversity score.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
American Pipit	<i>Anthus rubescens</i>	3.08
Brown (Grizzly) Bear	<i>Ursus arctos</i>	3.08
Mountain Goat	<i>Oreamnos americanus</i>	2.81
Northern Bog Lemming	<i>Synaptomys borealis</i>	2.53
Gray Wolf	<i>Canis lupus</i>	2.23
American Marten	<i>Martes americana</i>	2.13
Boreal Chickadee	<i>Poecile hudsonica</i>	1.67
Boreal Owl	<i>Aegolius funereus</i>	1.58
Canada Lynx	<i>Lynx canadensis</i>	1.57
Columbia Spotted Frog	<i>Rana luteiventris</i>	1.50
North American Wolverine	<i>Gulo gulo luscus</i>	1.49
Spruce Grouse	<i>Falci pennis canadensis</i>	1.46
Moose	<i>Alces americanus</i>	1.28
Northern Goshawk	<i>Accipiter gentilis</i>	1.20

TRACS: Appendix P

Okanagan

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Ruffed Grouse	<i>Bonasa umbellus</i>	1.33
Dusky Grouse	<i>Dendragapus obscurus</i>	1.24
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	2.69

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Deciduous Riparian (Willows and Other Shrubs)	1.19

Pasayten River-Similkameen River - TRACS-54—Integrated Priorities Watershed

This watershed is split between the Okanagan Ecoregion and the North Cascades Ecoregion.

This watershed is a priority because it is split with the North Cascades Ecoregion, where it meets the following criteria:

- One of the top 10 in the Region for Socially and Economically Important Vertebrates.

This watershed is also important because it has a high RA value for Priority Vertebrates.

Priority Vertebrates – Okanagan - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Northern Bog Lemming	<i>Synaptomys borealis</i>	2.96
Mountain Goat	<i>Oreamnos americanus</i>	2.95
Gray Wolf	<i>Canis lupus</i>	2.60
American Pipit	<i>Anthus rubescens</i>	2.58
American Marten	<i>Martes americana</i>	2.15
Boreal Owl	<i>Aegolius funereus</i>	1.81
Canada Lynx	<i>Lynx canadensis</i>	1.72
North American Wolverine	<i>Gulo gulo luscus</i>	1.58
Northern Goshawk	<i>Accipiter gentilis</i>	1.58
Spruce Grouse	<i>Falcpennis canadensis</i>	1.56
Boreal Chickadee	<i>Poecile hudsonica</i>	1.34

TRACS: Appendix P

Okanagan

Priority Vertebrates – North Cascades - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Canada Lynx	<i>Lynx canadensis</i>	5.67
Gray Wolf	<i>Canis lupus</i>	3.59
Mountain Goat	<i>Oreamnos americanus</i>	2.65
American Pipit	<i>Anthus rubescens</i>	2.54
Northern Bog Lemming	<i>Synaptomys borealis</i>	1.50
North American Wolverine	<i>Gulo gulo luscus</i>	1.32
Pika	<i>Ochotona princeps</i>	1.26

Priority Social/Economic Vertebrates – Okanagan

Common Name	Scientific Name	Relative Abundance
Dusky Grouse	<i>Dendragapus obscurus</i>	1.51
Ruffed Grouse	<i>Bonasa umbellus</i>	1.22
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Social/Economic Vertebrates – North Cascades

Common Name	Scientific Name	Relative Abundance
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Plants – Okanagan - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	2.69

Priority Plants – North Cascades - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	3.83

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats – Okanagan

This portion of the watershed is not important for any Priority Habitats.

Priority Habitats – North Cascades

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forests	1.21

TRACS: Appendix P

Okanagan

Salmon Creek - TRACS-59—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 12 in the Region for Aspen habitat.

This watershed is also important because it has a high RA value for Priority Habitats, and a moderate RA value for Priority Vertebrates.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Bighorn Sheep	<i>Ovis canadensis</i>	2.03
Boreal Chickadee	<i>Poecile hudsonica</i>	1.73
Northern Bog Lemming	<i>Synaptomys borealis</i>	1.69
Boreal Owl	<i>Aegolius funereus</i>	1.59
Canada Lynx	<i>Lynx canadensis</i>	1.55
American Pipit	<i>Anthus rubescens</i>	1.48
Spruce Grouse	<i>Falciennis canadensis</i>	1.44
North American Wolverine	<i>Gulo gulo luscus</i>	1.36
Northern Goshawk	<i>Accipiter gentilis</i>	1.35
American Marten	<i>Martes americana</i>	1.17
Mountain Goat	<i>Oreamnos americanus</i>	1.17

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Dusky Grouse	<i>Dendragapus obscurus</i>	1.22
Mule Deer	<i>Odocoileus hemionus</i>	1.00

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Crenulate Moonwort	<i>Botrychium crenulatum</i>	Vascular Plants	2.78

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Aspen	3.60
Deciduous Riparian (Willows and Other Shrubs)	1.91
Shrub Steppe	1.64

TRACS: Appendix P

Okanagan

Upper Chewuch River - TRACS-74—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Vertebrates.

This watershed is also important because it has a high RA value for Priority Vertebrates and a moderately high biodiversity score.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Brown (Grizzly) Bear	<i>Ursus arctos</i>	3.18
Northern Bog Lemming	<i>Synaptomys borealis</i>	2.84
Mountain Goat	<i>Oreamnos americanus</i>	2.72
Gray Wolf	<i>Canis lupus</i>	2.49
Bighorn Sheep	<i>Ovis canadensis</i>	2.48
American Pipit	<i>Anthus rubescens</i>	2.46
Boreal Owl	<i>Aegolius funereus</i>	1.72
Boreal Chickadee	<i>Poecile hudsonica</i>	1.69
Canada Lynx	<i>Lynx canadensis</i>	1.67
American Marten	<i>Martes americana</i>	1.57
Spruce Grouse	<i>Falcapennis canadensis</i>	1.56
North American Wolverine	<i>Gulo gulo luscus</i>	1.55
Northern Goshawk	<i>Accipiter gentilis</i>	1.42
Moose	<i>Alces americanus</i>	1.06

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Dusky Grouse	<i>Dendragapus obscurus</i>	1.07
Mule Deer	<i>Odocoileus hemionus</i>	1.01

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	2.77

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Deciduous Riparian (Willows and Other Shrubs)	1.29
Marshes	1.16

TRACS: Appendix Q

Pacific Northwest Coast

Pacific Northwest Coast Ecoregional Priorities

The Pacific NW Coast Ecoregion is a narrow, elongated ecoregion lying to the west of the Coast Range Mountains and stretching from the southern border of Oregon to the northern tip of Vancouver Island. The ecoregion includes nearly all of the Olympic Peninsula. Additional information about this ecoregion can be found in the assessment developed by The Nature Conservancy at:

http://conserveonline.org/coldocs/2007/02/PNW%20Coast%20EA%20Final_Main_Report_Aug21.pdf

Forests: Olympic, Rogue River-Siskiyou, Siuslaw

Management Class	Definition	% of Ecoregion
Preservation	Long-term preservation by Act of Congress	1
Conservation Emphasis	Preservation by Forest Plan land allocation	1
Managed Conservation	Conservation areas with limited management	7
Managed Multiple Objectives	Managed areas with multiple resource objectives	2
Active Management	Active management of multiple resources	1
Recreation Emphasis	Recreation emphasis areas	<1
Non-Forest Service	Non-Forest Service lands	87

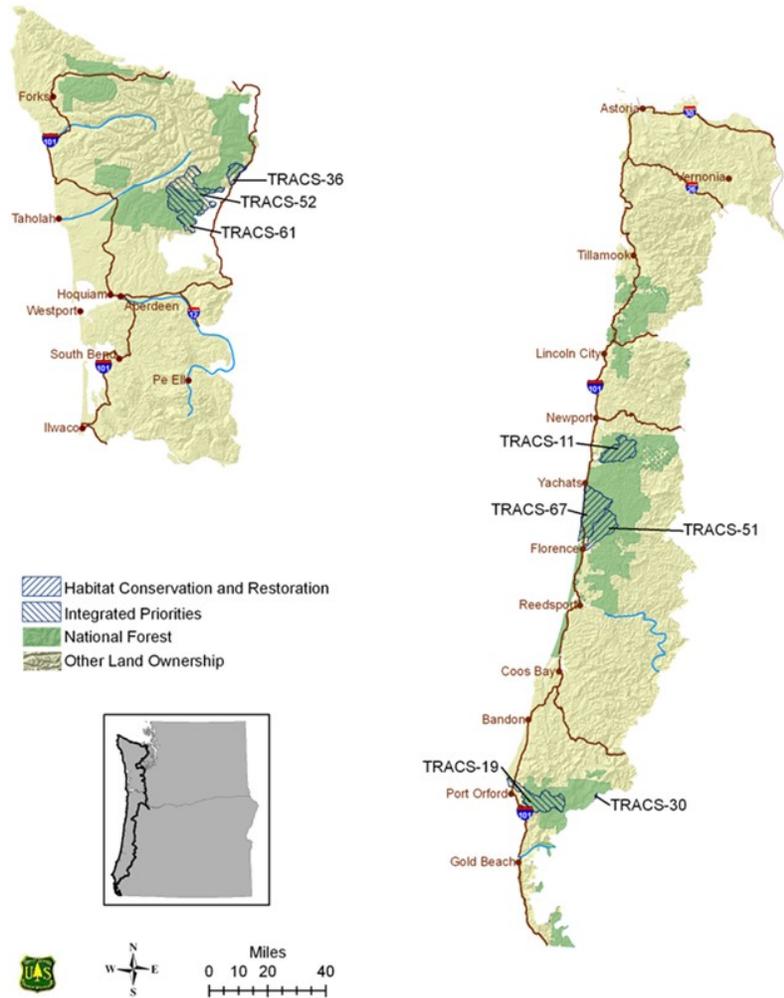
Priority Watersheds in the Pacific Northwest Coast Ecoregion

Integrated Priorities	Watershed ID
Elk River	TRACS-19
North Fork Skokomish River-Skokomish River	TRACS-52
South Fork Skokomish River	TRACS-61
Habitat Conservation and Restoration	Watershed ID
Drift Creek	TRACS-11
Horseshoe Bend-Rogue River	TRACS-30
Lilliwaup Creek-Frontal Hood Canal	TRACS-36
North Fork Siuslaw River	TRACS-51
Tenmile Creek-Frontal Pacific Ocean	TRACS-67

TRACS: Appendix Q

Pacific Northwest Coast

TRACS Priority Watersheds - Pacific Northwest Coast



Priority Species in the Pacific Northwest Coast Ecoregion

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific name
California Slender Salamander	<i>Batrachoseps attenuatus</i>
Del Norte Salamander	<i>Plethodon elongatus</i>
Dunn's Salamander	<i>Plethodon dunni</i>
Fisher	<i>Martes pennanti</i>
Marbled Murrelet	<i>Brachyramphus marmoratus</i>
Northern Spotted Owl	<i>Strix occidentalis caurina</i>
Olympic Torrent Salamander	<i>Rhyacotriton olympicus</i>
Red Tree Vole	<i>Arborimus longicaudus</i>
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>
Van Dyke's Salamander	<i>Plethodon vandykei</i>
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>

TRACS: Appendix Q

Pacific Northwest Coast

Priority Socially and Economically Important Vertebrates

Common Name	Scientific name
American Beaver	<i>Castor canadensis</i>
Black-tailed Deer	<i>Odocoileus hemionus columbianus</i>
Elk	<i>Cervus elaphus</i>
Ruffed Grouse	<i>Bonasa umbellus</i>

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group
Pink Sand-verbena	<i>Abronia umbellata</i> ssp. <i>breviflora</i>	Vascular Plants
Bog Anemone	<i>Anemone oregana</i> var. <i>felix</i>	Vascular Plants
Fungus	<i>Arcangeliella camphorata</i>	Fungi
Hairy Manzanita	<i>Arctostaphylos hispidula</i>	Vascular Plants
Cotton's Milk-vetch	<i>Astragalus cottonii</i>	Vascular Plants
Bensoniella	<i>Bensoniella oregana</i>	Vascular Plants
Lichen	<i>Bryoria pseudocapillaris</i>	Lichens
Lichen	<i>Bryoria spiralifera</i>	Lichens
Lichen	<i>Bryoria subcana</i>	Lichens
Moss	<i>Campylopus schmidii</i>	Nonvascular Plants
Saddle Mountain Bittercress	<i>Cardamine pattersonii</i>	Vascular Plants
Southerly Frigid Shootingstar	<i>Dodecatheon austrofrigidum</i>	Vascular Plants
Lichen	<i>Erioderma soledium</i>	Lichens
Coast Range Fawnlily	<i>Erythronium elegans</i>	Vascular Plants
Quinault Fawnlily	<i>Erythronium quinaultense</i>	Vascular Plants
Lichen	<i>Heterodermia sitchensis</i>	Lichens
Lichen	<i>Leioderma soledium</i>	Lichens
Fungus	<i>Martellia idahoensis</i>	Fungi
Lichen	<i>Niebla cephalota</i>	Lichens
Fungus	<i>Otidea smithii</i>	Fungi
Lichen	<i>Pannaria rubiginosa</i>	Lichens
Fungus	<i>Phaeocollybia gregaria</i>	Fungi
Fungus	<i>Phaeocollybia oregonensis</i>	Fungi
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants
Bristly-stemmed Checkermallow	<i>Sidalcea hirtipes</i>	Vascular Plants
Spreading Checkermallow	<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Vascular Plants
Cut-leaf Synthyris	<i>Synthyris pinnatifida</i> var. <i>lanuginosa</i>	Vascular Plants
Lichen	<i>Usnea longissima</i>	Lichens

TRACS: Appendix Q

Pacific Northwest Coast

Socially/Economically/Culturally Important Plants

Common Name	Scientific Name	Group	Significance ¹
Oregon Grape	<i>Berberis aquifolium</i> , <i>B. nervosa</i>	Vascular Plants	SPF, T
King Bolete	<i>Boletus edulis</i>	Fungi	SPF
Leichtlin's Camas	<i>Camassia leichtlinii</i>	Vascular Plants	T
Blue Camas, Common Camas	<i>Camassia quamash</i>	Vascular Plants	FS, T
Chanterelle	<i>Cantharellus formosus</i> , <i>C. cascadenis</i> , <i>C. cibarius?</i>	Fungi	FS, SFP, T
Hazelnut	<i>Corylus cornuta</i>	Vascular Plants	FS, T
Cascara	<i>Frangula purshiana</i>	Vascular Plants	FS, SFP, T
Salal	<i>Galtheria shallon</i>	Vascular Plants	SPF, T
Barestem Lomatium	<i>Lomatium nudicaule</i>	Vascular Plants	T
Wokas	<i>Nuphar lutea</i> ssp. <i>polysepala</i>	Vascular Plants	T
Yampah/Sa Wikt	<i>Perideridia gairdneri</i>	Vascular Plants	T
Swordfern	<i>Polystichum munitum</i>	Vascular Plants	SPF
Bitter Cherry	<i>Prunus emarginata</i>	Vascular Plants	T
Labrador Tea	<i>Rhododendron (Ledum)</i> <i>groenlandicum</i>	Vascular Plants	T
Hardstem Bulrush	<i>Schoenoplectus acutus</i>	Vascular Plants	T
Softstem Bulrush	<i>Schoenoplectus tabernaemontani</i>	Vascular Plants	T
Western Red Cedar	<i>Thuja plicata</i>	Vascular Plants	T
White Matsutake, Pine Mushroom	<i>Tricholoma magnivelare</i>	Fungi	FS, SFP
Blue-leaved Huckleberry, Cascade Bilberry	<i>Vaccinium deliciosum</i>	Vascular Plants	FS, SFP, T
Oval-leaf Blueberry	<i>Vaccinium ovalifolium</i>	Vascular Plants	FS, SFP, T
California Huckleberry	<i>Vaccinium ovatum</i>	Vascular Plants	SPF, T
Cranberry	<i>Vaccinium oxycoccus</i>	Vascular Plants	T
Red Huckleberry	<i>Vaccinium parvifolium</i>	Vascular Plants	FS, SFP, T
Beargrass	<i>Xerophyllum tenax</i>	Vascular Plants	FS, SFP, T

¹ FS = USFS Management Priority (past, present, or future); SFP = Economically Important Special Forest Product; T = Tribal Importance

TRACS: Appendix Q

Pacific Northwest Coast

Priority Invertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group
Blind Carabid Beetle	<i>Pterostichus rothi</i>	Insects
Columbia Oregonian	<i>Cryptomastix hendersoni</i>	Molluscs
Evening Fieldslug	<i>Deroceras hesperium</i>	Molluscs
Hoary Elfin	<i>Callophrys polios maritima</i>	Moths, Butterflies and Skippers
Insular Blue Butterfly	<i>Plebejus saepiolus littoralis</i>	Moths, Butterflies and Skippers
Keeled Jumping-slug	<i>Hemphillia burringtoni</i>	Molluscs
Oregon Plant Bug	<i>Lygus oregonae</i>	Insects
Oregon Silverspot Butterfly	<i>Speyeria zerene hippolyta</i>	Moths, Butterflies and Skippers
Green Sideband	<i>Monadenia fidelis beryllica</i>	Molluscs
Pacific Walker	<i>Pomatiopsis californica</i>	Molluscs
Robust Walker	<i>Pomatiopsis binneyi</i>	Molluscs
Taylor's Checkerspot Butterfly	<i>Euphydryas editha taylori</i>	Moths, Butterflies and Skippers
Tillamook Westernslug	<i>Hesperarion mariae</i>	Molluscs

Priority Habitats in the Pacific Northwest Coast Ecoregion

- Dry Meadows
- Golden Chinquapin
- Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock
- Late-seral Tanoak
- Olympic Temperate Rainforest
- Port Orford Cedar
- Springs and Seeps
- Western Redcedar/Western Hemlock

Priority Watershed Descriptions

Drift Creek - TRACS-11—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock habitat.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>	2.10
Red Tree Vole	<i>Arborimus longicaudus</i>	2.02
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	1.88
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.43
Dunn's Salamander	<i>Plethodon dunni</i>	1.21

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Pacific Northwest Coast

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Ruffed Grouse	<i>Bonasa umbellus</i>	1.52
Elk	<i>Cervus canadensis</i>	1.07

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Loose-flower Bluegrass	<i>Poa laxiflora</i>	Vascular Plants	3.71

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Springs and Seeps	3.26
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	2.23

Elk River - TRACS-19—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for biodiversity.
- One of the top 30 in the Region for integration of priorities, due to a high RA value for Priority Habitats and moderately high RA values for Priority Plants and Priority Vertebrates.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
California Slender Salamander	<i>Batrachoseps attenuatus</i>	4.40
Del Norte Salamander	<i>Plethodon elongatus</i>	3.83
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	2.02
Red Tree Vole	<i>Arborimus longicaudus</i>	1.99
Fisher	<i>Martes pennanti</i>	1.96
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>	1.94
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.19
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>	1.14

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Ruffed Grouse	<i>Bonasa umbellus</i>	1.42
Elk	<i>Cervus canadensis</i>	1.06

TRACS: Appendix Q

Pacific Northwest Coast

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Fungus	<i>Arcangeliella camphorata</i>	Fungi	4.27
Hairy Manzanita	<i>Arctostaphylos hispidula</i>	Vascular Plants	4.26

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral Tanoak	4.43
Port Orford Cedar	3.30
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	1.66
Springs and Seeps	1.37

Horseshoe Bend-Rogue River - TRACS-30—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock habitat.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Del Norte Salamander	<i>Plethodon elongatus</i>	3.93
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	2.27
Red Tree Vole	<i>Arborimus longicaudus</i>	2.19
Fisher	<i>Martes pennanti</i>	1.97
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.48

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Ruffed Grouse	<i>Bonasa umbellus</i>	1.47
Elk	<i>Cervus canadensis</i>	1.07

Priority Plants

This watershed is not important for any Priority Plants.

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

TRACS: Appendix Q

Pacific Northwest Coast

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral Tanoak	2.81
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	2.34

Lilliwaup Creek-Frontal Hood Canal - TRACS-36—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock habitat.

Priority Vertebrates

Common Name	Scientific Name	Relative Abundance
Van Dyke's Salamander	<i>Plethodon vandykei</i>	2.83
Olympic Torrent Salamander	<i>Rhyacotriton olympicus</i>	1.82

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Deer and Elk Winter Range	NA	1.25
Elk	<i>Cervus canadensis</i>	1.06

Priority Plants

This watershed is not important for any Priority Plants.

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Keeled Jumping-slug	<i>Hemphillia burringtoni</i>	4.54

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	2.11

TRACS: Appendix Q

Pacific Northwest Coast

North Fork Siuslaw River - TRACS-51—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock habitat.

Priority Vertebrates - Federally listed and candidate species are identified in **bold** .

Common Name	Scientific Name	Relative Abundance
Red Tree Vole	<i>Arborimus longicaudus</i>	1.96
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	1.94
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>	1.53
Dunn's Salamander	<i>Plethodon dunni</i>	1.24
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.23

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Deer and Elk Winter Range	NA	1.48
Ruffed Grouse	<i>Bonasa umbellus</i>	1.48
Elk	<i>Cervus canadensis</i>	1.06

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Loose-flower Bluegrass	<i>Poa laxiflora</i>	Vascular Plants	2.51

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	2.16

TRACS: Appendix Q

Pacific Northwest Coast

North Fork Skokomish River-Skokomish River - TRACS-52—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for biodiversity.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Van Dyke's Salamander	<i>Plethodon vandykei</i>	2.75
Olympic Torrent Salamander	<i>Rhyacotriton olympicus</i>	2.11
Fisher	<i>Martes pennanti</i>	1.98
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.51

Priority Social/Economic Vertebrates

This watershed is not important for Social/Economic Vertebrates.

Priority Plants

This watershed is not important for any Priority Plants.

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	1.53

South Fork Skokomish River - TRACS-61—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for biodiversity.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Van Dyke's Salamander	<i>Plethodon vandykei</i>	2.77
Olympic Torrent Salamander	<i>Rhyacotriton olympicus</i>	2.28
Fisher	<i>Martes pennanti</i>	1.98
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.42

TRACS: Appendix Q

Pacific Northwest Coast

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.04

Priority Plants

This watershed is not important for any Priority Plants.

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	1.55

Tenmile Creek-Frontal Pacific Ocean - TRACS-67—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock Habitat.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>	2.28
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	1.92
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>	1.86
Red Tree Vole	<i>Arborimus longicaudus</i>	1.81
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.43
Dunn's Salamander	<i>Plethodon dunni</i>	1.40

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Ruffed Grouse	<i>Bonasa umbellus</i>	1.45
Elk	<i>Cervus canadensis</i>	1.05
Deer and Elk Winter Range	NA	1.01

TRACS: Appendix Q

Pacific Northwest Coast

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Lichen	<i>Niebla cephalota</i>	Lichen	4.44
Fungus	<i>Arcangeliella camphorata</i>	Fungi	4.10
Lichen	<i>Bryoria pseudocapillaris</i>	Lichen	3.06
Loose-flower Bluegrass	<i>Poa laxiflora</i>	Vascular Plants	2.42

Priority Invertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Oregon Silverspot Butterfly	<i>Speyeria zerene hippolyta</i>	5.35
Pacific Walker	<i>Pomatiopsis californica</i>	5.35

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	2.15
Port Orford Cedar	2.10
Springs and Seeps	1.20

TRACS: Appendix R

West Cascades

West Cascades Ecoregional Priorities

The West Cascades Ecoregion extends west from the Cascade Crest to Puget Sound and the Willamette Valley lowlands and from Snoqualmie Pass south across the Columbia Gorge to the Klamath Mountains in southwestern Oregon, almost to the California border. This mountainous, heavily forested ecoregion is bounded on the west by farms, woodlands, and cities in the Puget Trough and the Willamette Valley, and by the drier forests and valleys of the Klamath Mountains. The eastern boundary is the crest of the Cascades, where the mesic forests begin to give way to the drier forests of the East Cascades. The topography and soils of the West Cascades Ecoregion have been dramatically shaped by a volcanic past. Conifer forests dominate the vegetation of the West Cascades Ecoregion. Additional information about this ecoregion can be found in the assessment developed by The Nature Conservancy at:

http://conserveonline.org/coldocs/2007/08/EW_Cascades_EA_Main%20Report_final_COL.pdf

Forests: Columbia River Gorge National Scenic Area, Deschutes, Fremont-Winema, Gifford Pinchot, Mt. Baker-Snoqualmie, Mt. Hood, Okanogan-Wenatchee, Rogue River-Siskiyou, Umpqua, Willamette

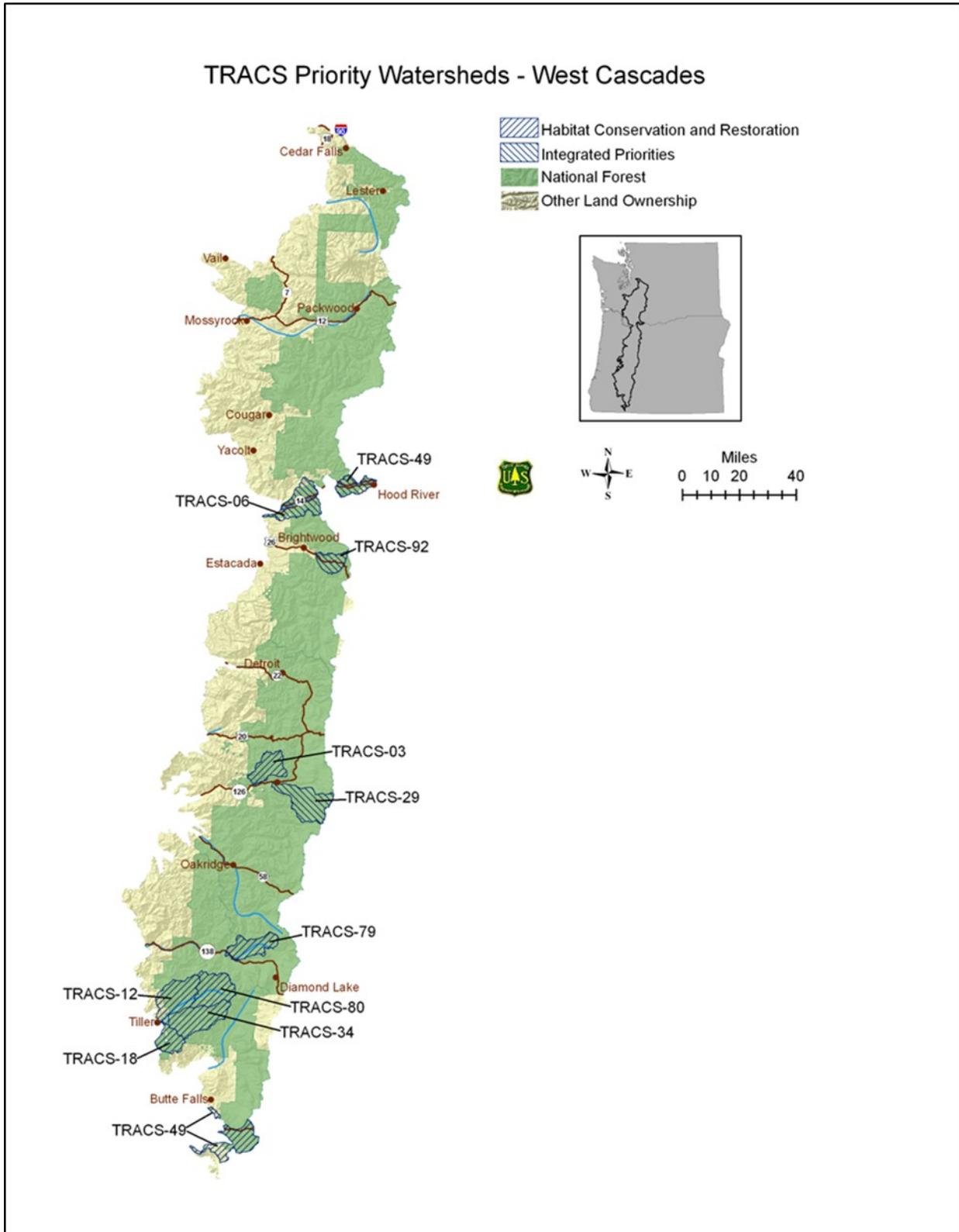
Management Class	Definition	% of Ecoregion
Preservation	Long-term preservation by Act of Congress	12
Conservation Emphasis	Preservation by Forest Plan land allocation	6
Managed Conservation	Conservation areas with limited management	17
Managed Multiple Objectives	Managed areas with multiple resource objectives	9
Active Management	Active management of multiple resources	10
Recreation Emphasis	Recreation emphasis areas	<1
Non-Forest Service	Non-Forest Service lands	46

Priority Watersheds in the West Cascades Ecoregion

Integrated Priorities	Watershed ID
City of Washougal-Columbia River	TRACS-06
Horse Creek	TRACS-29
Mosier Creek-Columbia River	TRACS-49
Zigzag River	TRACS-92
Habitat Conservation and Restoration	Watershed ID
Blue River	TRACS-03
Dumont Creek-South Umpqua River	TRACS-12
Elk Creek	TRACS-18
Jackson Creek	TRACS-34
Little Butte Creek	TRACS-38
Upper North Umpqua River	TRACS-79
Upper South Umpqua River	TRACS-80

TRACS: Appendix R

West Cascades



TRACS: Appendix R

West Cascades

Priority Species in the West Cascades Ecoregion

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific name
American Marten	<i>Martes americana</i>
American Peregrine Falcon	<i>Falco peregrinus anatus</i>
Brown (Grizzly) Bear	<i>Ursus arctos</i>
Bufflehead	<i>Bucephala albeola</i>
California Mountain Kingsnake	<i>Lampropeltis zonata</i>
Cascade Torrent Salamander	<i>Rhyacotriton cascadae</i>
Cascades Frog	<i>Rana cascadae</i>
Dunn's Salamander	<i>Plethodon dunni</i>
Fisher	<i>Martes pennanti</i>
Foothill Yellow-legged Frog	<i>Rana boylei</i>
Harlequin Duck	<i>Histrionicus histrionicus</i>
Larch Mountain Salamander	<i>Plethodon larselli</i>
Marbled Murrelet	<i>Brachyramphus marmoratus</i>
Mountain Goat	<i>Oreamnos americanus</i>
North American Wolverine	<i>Gulo gulo luscus</i>
Northern Goshawk	<i>Accipiter gentilis</i>
Northern Spotted Owl	<i>Strix occidentalis caurina</i>
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>
Oregon Spotted Frog	<i>Rana pretiosa</i>
Pika	<i>Ochotona princeps</i>
Red Tree Vole	<i>Arborimus longicaudus</i>
Ringtail	<i>Bassariscus astutus</i>
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>
Van Dyke's Salamander	<i>Plethodon vandykei</i>
Western Gray Squirrel	<i>Sciurus griseus</i>

Priority Socially and Economically Important Vertebrates

Common Name	Scientific name
American Beaver	<i>Castor canadensis</i>
Black-tailed Deer	<i>Odocoileus hemionus columbianus</i>
Elk	<i>Cervus elaphus</i>
White-tailed Deer	<i>Odocoileus virginianus</i>

TRACS: Appendix R

West Cascades

Priority Plants – Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group
Howell's Bentgrass	<i>Agrostis howellii</i>	Vascular Plants
Fungus	<i>Alpova alexsmithii</i>	Fungi
Hells Canyon Rockcress	<i>Arabis hastatula</i>	Vascular Plants
Oregon Bolandra	<i>Bolandra oregana</i>	Vascular Plants
Moss	<i>Brachydontium olympicum</i>	Nonvascular Plants
Lichen	<i>Bryoria subcana</i>	Lichens
Moss	<i>Bryum calobryoides</i>	Nonvascular Plants
Brewer's Reedgrass	<i>Calamagrostis breweri</i>	Vascular Plants
Umpqua Mariposa Lily	<i>Calochortus umpquaensis</i>	Vascular Plants
Lichen	<i>Chaenotheca subroscida</i>	Lichens
Liverwort	<i>Chiloscyphus gemmiparus</i>	Nonvascular Plants
Fungus	<i>Chroogomphus loculatus</i>	Fungi
Mt. Mazama Collomia	<i>Collomia mazama</i>	Vascular Plants
Cold-water Corydalis	<i>Corydalis caseana</i> ssp. <i>aquae-gelidae</i>	Vascular Plants
Howell's Fleabane	<i>Erigeron howellii</i>	Vascular Plants
Oregon Fleabane	<i>Erigeron oreganus</i>	Vascular Plants
Gorman's Aster	<i>Eucephalus gormanii</i>	Vascular Plants
Gentner's Fritillaria	<i>Fritillaria gentneri</i>	Vascular Plants
Fungus	<i>Gastroboletus vividus</i>	Fungi
Fungus	<i>Gomphus kauffmanii</i>	Fungi
Diffuse Stickseed	<i>Hackelia diffusa</i> var. <i>diffusa</i>	Vascular Plants
Fungus	<i>Helvella crassitunicata</i>	Fungi
Lichen	<i>Hypogymnia duplicata</i>	Lichens
California Globemallow	<i>Iliamna latibracteata</i>	Vascular Plants
North Umpqua Kalmiopsis	<i>Kalmiopsis fragrans</i>	Vascular Plants
Lichen	<i>Lobaria linita</i>	Lichens
Liverwort	<i>Lophozia laxa</i>	Nonvascular Plants
Liverwort	<i>Marsupella emarginata</i> var. <i>aquatica</i>	Nonvascular Plants
Fungus	<i>Martellia idahoensis</i>	Fungi
Lichen	<i>Nephroma occultum</i>	Lichens
Giant Polypore Fungus	<i>Oxyporus nobilissimus</i>	Fungi
Mount Rainier Lousewort	<i>Pedicularis rainierensis</i>	Vascular Plants
Fungus	<i>Phaeocollybia oregonensis</i>	Fungi
Lichen	<i>Pilophorus nigricaulis</i>	Lichens
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants
Lichen	<i>Pseudocyphellaria mallota</i>	Lichens
Lichen	<i>Pseudocyphellaria rainierensis</i>	Lichens
Powdery Twig Lichen	<i>Ramalina pollinaria</i>	Lichens
Moss	<i>Rhizomnium nudum</i>	Nonvascular Plants
Fungus	<i>Rhizopogon ellipsosporus</i>	Fungi
Thompson's Mistmaiden	<i>Romanzoffia thompsonii</i>	Vascular Plants
Luminous Moss	<i>Schistostega pennata</i>	Nonvascular Plants
Pale Blue-eyed-grass	<i>Sisyrinchium sarmentosum</i>	Vascular Plants
Oregon Sullivantia	<i>Sullivantia oregana</i>	Vascular Plants
Moss	<i>Tetraphis geniculata</i>	Nonvascular Plants
Lichen	<i>Tholurna dissimilis</i>	Lichens
Lichen	<i>Usnea longissima</i>	Lichens

TRACS: Appendix R

West Cascades

Socially/Economically/Culturally Important Plants

Common Name	Scientific Name	Group	Significance ¹
Noble Fir	<i>Abies procera</i>	Vascular Plants	FS, SFP
Oregon Grape	<i>Berberis aquifolium, B. nervosa</i>	Vascular Plants	SPF, T
King Bolete	<i>Boletus edulis</i>	Fungi	SPF
Leichtlin's Camas	<i>Camassia leichtlinii</i>	Vascular Plants	T
Blue Camas, Common Camas	<i>Camassia quamash</i>	Vascular Plants	FS, T
Chanterelle	<i>Cantharellus formosus, C. cascadenis, C. cibarius?</i>	Fungi	FS, SFP, T
Springbeauty	<i>Claytonia lanceolata</i>	Vascular Plants	T
Hazelnut	<i>Corylus cornuta</i>	Vascular Plants	FS, T
Cascara	<i>Frangula purshiana</i>	Vascular Plants	FS, SFP, T
Salal	<i>Galtheria shallon</i>	Vascular Plants	SPF, T
Gray's Biscuitroot	<i>Lomatium grayi</i>	Vascular Plants	T
Barestem Lomatium	<i>Lomatium nudicaule</i>	Vascular Plants	T
Morel	<i>Morchella sp.</i>	Fungi	FS, SFP, T
Wokas	<i>Nuphar lutea ssp. polysepala</i>	Vascular Plants	T
Yampah/Sa Wikt	<i>Perideridia gairdneri</i>	Vascular Plants	T
Ipos	<i>Perideridia oregana</i>	Vascular Plants	T
Swordfern	<i>Polystichum munitum</i>	Vascular Plants	SPF
Bitter Cherry	<i>Prunus emarginata</i>	Vascular Plants	T
Chokecherry	<i>Prunus virginiana</i>	Vascular Plants	T
Oregon or Garry Oak & Black Oak	<i>Quercus garryana & Q. kelloggii</i>	Vascular Plants	T
Wapato	<i>Sagittaria latifolia, S. cuneata</i>	Vascular Plants	T
Hardstem Bulrush	<i>Schoenoplectus acutus</i>	Vascular Plants	T
Western Red Cedar	<i>Thuja plicata</i>	Vascular Plants	T
White Matsutake, Pine Mushroom	<i>Tricholoma magnivelare</i>	Fungi	FS, SFP
Blue-leaved Huckleberry, Cascade Bilberry	<i>Vaccinium deliciosum</i>	Vascular Plants	FS, SFP, T
Black Huckleberry, Thinleaf Huckleberry	<i>Vaccinium membranaceum</i>	Vascular Plants	FS, SFP, T
Oval-leaf Blueberry	<i>Vaccinium ovalifolium</i>	Vascular Plants	FS, SFP, T
California Huckleberry	<i>Vaccinium ovatum</i>	Vascular Plants	SPF, T
Cranberry	<i>Vaccinium oxycoccus</i>	Vascular Plants	T
Red Huckleberry	<i>Vaccinium parvifolium</i>	Vascular Plants	FS, SFP, T
High-bush Cranberry	<i>Viburnum edule</i>	Vascular Plants	T
Beargrass	<i>Xerophyllum tenax</i>	Vascular Plants	FS, SFP, T

¹ FS = USFS Management Priority (past, present, or future); SFP = Economically Important Special Forest Product; T = Tribal Importance

TRACS: Appendix R

West Cascades

Priority Invertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group
Barren Juga	<i>Juga hemphilli hemphilli</i>	Molluscs
Columbia Oregonian	<i>Cryptomastix hendersoni</i>	Molluscs
Evening Fieldslug	<i>Deroceras hesperium</i>	Molluscs
Mardon Skipper	<i>Polites mardon</i>	Moths, Butterflies and Skippers
Oregon Shoulderband	<i>Helminthoglypta hertleini</i>	Molluscs
Panther Jumping Slug	<i>Hemphillia pantherina</i>	Molluscs
Siskiyou Chloealtis Grasshopper	<i>Chloealtis aspasma</i>	Insects
Siskiyou Hesperian	<i>Vespericola sierranus</i>	Molluscs
Siskiyou Shoulderband	<i>Monadenia chaceana</i>	Molluscs
Travelling Sideband	<i>Monadenia fidelis celeuthia</i>	Molluscs

Priority Habitats in the West Cascades Ecoregion

Deciduous Riparian (Willows and Other Shrubs)

Dry Meadows

Late-seral High-elevation Fir Forests

Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock

Southeast Late-seral Mixed Conifer

Springs and Seeps

Western Redcedar/Western Hemlock

Wet Meadows

Priority Watershed Descriptions

Blue River - TRACS-03—Habitat Conservation and Restoration

This watershed is a priority because it meets the following criteria:

- One of the top nine in the Region for Late-seral and Mid-elevation Douglas-fir — Western Hemlock habitat.

The watershed is also important because it has high a RA value for Priority Vertebrates and a high biodiversity score.

TRACS: Appendix R

West Cascades

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Bufflehead	<i>Bucephala albeola</i>	2.24
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	2.16
Red Tree Vole	<i>Arborimus longicaudus</i>	2.02
Cascade Torrent Salamander	<i>Rhyacotriton cascadae</i>	1.78
Dunn's Salamander	<i>Plethodon dunni</i>	1.76
American Marten	<i>Martes americana</i>	1.73
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	1.66
Western Gray Squirrel	<i>Sciurus griseus</i>	1.54
Pika	<i>Ochotona princeps</i>	1.44
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.26
Northern Goshawk	<i>Accipiter gentilis</i>	1.21
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.02

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.02

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Gorman's Aster	<i>Eucephalus gormanii</i>	Vascular Plants	2.39
Thompson's Mistmaiden	<i>Romanzoffia thompsonii</i>	Vascular Plants	1.71

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral Low- and Mid-elevation Douglas-fir – Western Hemlock	2.06

TRACS: Appendix R

West Cascades

City of Washougal-Columbia River - TRACS-06—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Plants.

This watershed is also important because it has a moderate RA value for Priority Vertebrates.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	2.37
Larch Mountain Salamander	<i>Plethodon larselli</i>	2.01
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	1.52
Oregon Spotted Frog	<i>Rana pretiosa</i>	1.49
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	1.39
Pika	<i>Ochotona princeps</i>	1.32
Dunn's Salamander	<i>Plethodon dunni</i>	1.03

Priority Social/Economic Vertebrates

This watershed is not important for any Priority Social/Economic Vertebrates.

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Diffuse Stickseed	<i>Hackelia diffusa</i> var. <i>diffusa</i>	Vascular Plants	5.72
Oregon Bolandra	<i>Bolandra oregana</i>	Vascular Plants	5.42
Oregon Fleabane	<i>Erigeron oreganus</i>	Vascular Plants	5.39
Howell's Fleabane	<i>Erigeron howellii</i>	Vascular Plants	5.33
Oregon Sullivantia	<i>Sullivantia oregana</i>	Vascular Plants	5.32
Howell's Bentgrass	<i>Agrostis howellii</i>	Vascular Plants	5.03

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Wet Meadows	1.55
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	1.52

TRACS: Appendix R

West Cascades

Dumont Creek-South Umpqua River - TRACS -12—Habitat Conservation and Restoration

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Southeast Late-seral Mixed-conifer habitat.

The watershed also is important because it has moderate RA values for Priority Plants, Socially and Economically Important Vertebrates and other Priority Vertebrates, and a moderately high biodiversity score.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Foothill Yellow-legged Frog	<i>Rana boylei</i>	3.07
Ringtail	<i>Bassariscus astutus</i>	2.41
Fisher	<i>Martes pennanti</i>	2.31
Red Tree Vole	<i>Arborimus longicaudus</i>	1.63
American Marten	<i>Martes americana</i>	1.50
Western Gray Squirrel	<i>Sciurus griseus</i>	1.50
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.13
Dunn's Salamander	<i>Plethodon dunni</i>	1.11
Cascades Frog	<i>Rana cascadae</i>	1.02

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.05

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
North Umpqua Kalmiopsis	<i>Kalmiopsis fragrans</i>	Vascular Plants	3.77
Thompson's Mistmaiden	<i>Romanzoffia thompsonii</i>	Vascular Plants	1.19

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Siskiyou Shoulderband	<i>Monadenia chaceana</i>	4.35
Oregon Shoulderband	<i>Helminthoglypta hertleini</i>	4.05

Priority Habitats

Priority Habitat	Relative Abundance
Southeast Late-seral Mixed Conifer	2.96

TRACS: Appendix R

West Cascades

Eagle Creek-Columbia River - TRACS-14—Integrated Priorities Watershed

This watershed is assigned to the East Cascades/Modoc Plateau Ecoregion, but probably should have been assigned to the West Cascades Ecoregion. The watershed is in a transition zone between east and west Cascades ecosystems. For this reason, Priority Species and Habitats in this watershed are listed for both ecoregions.

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for biodiversity.
- One of the top 30 in the Region for integration of priorities, due to a high RA value for Priority Vertebrates and a moderately high RA value Priority Plants.

Priority Vertebrates – West Cascades - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Oregon Spotted Frog	<i>Rana pretiosa</i>	3.39
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	3.26
Larch Mountain Salamander	<i>Plethodon larselli</i>	2.30
Cascade Torrent Salamander	<i>Rhyacotriton cascadae</i>	1.70
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	1.67
Pika	<i>Ochotona princeps</i>	1.30
Northern Goshawk	<i>Accipiter gentilis</i>	1.28
Cascades Frog	<i>Rana cascadae</i>	1.16
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.12

Priority Vertebrates – East Cascades/Modoc Plateau - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	3.53
Larch Mountain Salamander	<i>Plethodon larselli</i>	3.31
Western Gray Squirrel	<i>Sciurus griseus</i>	1.90
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.89
Great Gray Owl	<i>Strix nebulosa</i>	1.83
Northern Goshawk	<i>Accipiter gentilis</i>	1.55
Cascades Frog	<i>Rana cascadae</i>	1.54
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.44
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.39
North American Wolverine	<i>Gulo gulo luscus</i>	1.37
Flammulated Owl	<i>Otus flammeolus</i>	1.30
Oregon Spotted Frog	<i>Rana pretiosa</i>	1.26
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.26
Pika	<i>Ochotona princeps</i>	1.13

TRACS: Appendix R

West Cascades

Priority Social/Economic Vertebrates – West Cascades

Common Name	Scientific Name	Relative Abundance
Black-tailed Deer	<i>Odocoileus hemionus columbianus</i>	1.37
Elk	<i>Cervus canadensis</i>	1.04

Priority Social/Economic Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.10

Priority Plants – West Cascades

Common Name	Scientific Name	Group	Relative Abundance
Howell's Fleabane	<i>Erigeron howellii</i>	Fungi	4.16
Cold-water Corydalis	<i>Corydalis caseana ssp. aquae-gelidae</i>	Vascular Plants	3.05

Priority Plants – East Cascades/Modoc Plateau

Common Name	Scientific Name	Group	Relative Abundance
Lichen	<i>Chaenotheca subroscida</i>	Fungi	3.93

Priority Invertebrates – West Cascades

This portion of the watershed is not important for any Priority Invertebrates.

Priority Invertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Columbia Oregonian	<i>Cryptomastix hendersoni</i>	5.16

Priority Habitats – West Cascades

Priority Habitat	Relative Abundance
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	1.73

Priority Habitats – East Cascades/Modoc Plateau

Priority Habitat	Relative Abundance
Deciduous Riparian (Willows and Other Shrubs)	1.63
Springs and Seeps	1.61
Cottonwood Riparian	1.36

TRACS: Appendix R

West Cascades

Elk Creek - TRACS-18—Habitat Conservation and Restoration Watershed

This watershed is split between the West Cascades Ecoregion and the Klamath Ecoregion.

This watershed is a priority because it is split with the Klamath Mountains Ecoregion, where it meets the following criteria:

- One of the top nine in the Region for Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock habitat and one of the top six in the Region for Oak and Pine habitat.

Priority Vertebrates – West Cascades - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Foothill Yellow-legged Frog	<i>Rana boylei</i>	3.15
Ringtail	<i>Bassariscus astutus</i>	2.15
Fisher	<i>Martes pennanti</i>	2.14
Cascades Frog	<i>Rana cascadae</i>	1.37
Western Gray Squirrel	<i>Sciurus griseus</i>	1.35

Priority Vertebrates – Klamath - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Foothill Yellow-legged Frog	<i>Rana boylei</i>	1.51
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.41
Ringtail	<i>Bassariscus astutus</i>	1.35
Flammulated Owl	<i>Otus flammeolus</i>	1.32
Fisher	<i>Martes pennanti</i>	1.27
Western Gray Squirrel	<i>Sciurus griseus</i>	1.06

Priority Social/Economic Vertebrates – West Cascades

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.05

Priority Social/Economic Vertebrates - Klamath

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.03

Priority Plants – West Cascades

Common Name	Scientific Name	Group	Relative Abundance
Thompson's Mistmaiden	<i>Romanzoffia thompsonii</i>	Vascular Plants	1.91
California Globe-mallow	<i>Iliamna latibracteata</i>	Vascular Plants	1.24

TRACS: Appendix R

West Cascades

Priority Plants - Klamath

Common Name	Scientific Name	Group	Relative Abundance
Umpqua Mariposa Lily	<i>Calochortus umpquaensis</i>	Vascular Plants	5.90
Kincaid's Lupine	<i>Lupinus oregonus</i> var. <i>kincaidii</i>	Vascular Plants	4.76

Priority Invertebrates – West Cascades

Common Name	Scientific Name	Relative Abundance
Oregon Shoulderband	<i>Helminthoglypta hertleini</i>	4.87
Siskiyou Shoulderband	<i>Monadenia chaceana</i>	4.29

Priority Invertebrates - Klamath

Common Name	Scientific Name	Relative Abundance
Oregon Shoulderband	<i>Helminthoglypta hertleini</i>	4.56

Priority Habitats – West Cascades

Priority Habitat	Relative Abundance
Southeast Late-seral Mixed Conifer	2.72
Deciduous Riparian (Willows and Other Shrubs)	1.06
Springs and Seeps	1.03

Priority Habitats - Klamath

Priority Habitat	Relative Abundance
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	2.47
Southeast Late-seral Mixed Conifer	2.24
Oak and Pine	2.17
Southwest Oregon Mixed Pine	2.15

TRACS: Appendix R

West Cascades

Horse Creek - TRACS-29—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Priority Plants.

This watershed is also important because it has high RA values for Priority Habitats and a moderate RA value for Priority Vertebrates.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Bufflehead	<i>Bucephala albeola</i>	2.53
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	2.24
American Marten	<i>Martes americana</i>	1.66
Western Gray Squirrel	<i>Sciurus griseus</i>	1.54
Northern Goshawk	<i>Accipiter gentilis</i>	1.53
Pika	<i>Ochotona princeps</i>	1.51
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.37
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.30
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	1.29
Cascades Frog	<i>Rana cascadae</i>	1.22
Dunn's Salamander	<i>Plethodon dunni</i>	1.09

Priority Social/Economic Vertebrates

This watershed is not important for Social/Economic Vertebrates.

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Fungus	<i>Gastroboletus vividus</i>	Fungi	5.53
Fungus	<i>Martellia idahoensis</i>	Fungi	5.53
Moss	<i>Bryum calobryoides</i>	Nonvascular Plants	4.83
Liverwort	<i>Chiloscyphus gemmiparus</i>	Nonvascular Plants	4.83
Fungus	<i>Chroogomphus loculatus</i>	Fungi	4.43
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	1.76

Priority Invertebrates

No Priority Invertebrates occur in this watershed.

TRACS: Appendix R

West Cascades

Priority Habitats

Priority Habitat	Relative Abundance
Late-seral High-elevation Fir Forest	2.47
Wet Meadows	2.11
Springs and Seeps	1.90
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	1.67
Deciduous Riparian (Willows and Other Shrubs)	1.41

Jackson Creek - TRACS-34—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Southeast Late-seral Mixed-conifer habitat.

The watershed is also important because it has moderate RA values for Priority Plants, Socially and Economically Important Vertebrates, Priority Habitats, and Priority Vertebrates.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Foothill Yellow-legged Frog	<i>Rana boylei</i>	2.70
Ringtail	<i>Bassariscus astutus</i>	2.53
Fisher	<i>Martes pennanti</i>	2.31
Red Tree Vole	<i>Arborimus longicaudus</i>	1.45
Western Gray Squirrel	<i>Sciurus griseus</i>	1.45
American Marten	<i>Martes americana</i>	1.38
Cascades Frog	<i>Rana cascadae</i>	1.28
Northern Goshawk	<i>Accipiter gentilis</i>	1.27
Dunn's Salamander	<i>Plethodon dunni</i>	1.26
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.13

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.05

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
California Globemallow	<i>Iliamna latibracteata</i>	Vascular Plants	4.08
Lichen	<i>Chaenotheca subroscida</i>	Fungi	3.58
Mt. Mazama Collomia	<i>Collomia mazama</i>	Vascular Plants	2.20
Thompson's Mistmaiden	<i>Romanzoffia thompsonii</i>	Vascular Plants	1.89

TRACS: Appendix R

West Cascades

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Oregon Shoulderband	<i>Helminthoglypta hertleini</i>	4.71
Siskiyou Shoulderband	<i>Monadenia chaceana</i>	3.44

Priority Habitats

Priority Habitat	Relative Abundance
Southeast Late-seral Mixed Conifer	3.30
Springs and Seeps	1.49

Little Butte Creek - TRACS-38—Habitat Conservation and Restoration Watershed

This watershed is split between the West Cascades Ecoregion and the East Cascades/Modoc Ecoregion.

This watershed is a priority because it is split with the East Cascades/Modoc Plateau Ecoregion, where it meets the following criteria:

- One of the top 10 in the Region for Southeast Late-seral Mixed-conifer habitat.

The watershed is also important because it has moderately high RA values for Socially and Economically Important Vertebrates, Priority Habitats, and Priority Vertebrates.

Priority Vertebrates – West Cascades - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	3.16
Ringtail	<i>Bassariscus astutus</i>	2.33
Fisher	<i>Martes pennanti</i>	2.17
American Marten	<i>Martes americana</i>	1.31
Pika	<i>Ochotona princeps</i>	1.30
Western Gray Squirrel	<i>Sciurus griseus</i>	1.20

TRACS: Appendix R

West Cascades

Priority Vertebrates – East Cascades/Modoc Plateau - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Fisher	<i>Martes pennanti</i>	3.07
Western Gray Squirrel	<i>Sciurus griseus</i>	1.99
American Marten	<i>Martes americana</i>	1.95
Great Gray Owl	<i>Strix nebulosa</i>	1.91
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.83
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.57
Flammulated Owl	<i>Otus flammeolus</i>	1.54
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	1.38
Northern Goshawk	<i>Accipiter gentilis</i>	1.36
Pika	<i>Ochotona princeps</i>	1.04

Priority Social/Economic Vertebrates – West Cascades

This portion of the watershed is not important for Social/Economic Vertebrates.

Priority Social/Economic Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.22
Mule Deer	<i>Odocoileus hemionus</i>	1.03
Wild Turkey	<i>Meleagris gallopavo</i>	1.00

Priority Plants – West Cascades

Common Name	Scientific Name	Group	Relative Abundance
Moss	<i>Bryum calobryoides</i>	Nonvascular Plants	5.01
Fungus	<i>Gomphus kauffmanii</i>	Fungi	4.61
Lichen	<i>Chaenotheca subroscida</i>	Fungi	3.76

Priority Plants – East Cascades/Modoc Plateau

This portion of the watershed is not important for any Priority Plants.

Priority Invertebrates – West Cascades

Common Name	Scientific Name	Relative Abundance
Mardon Skipper	<i>Polites mardon</i>	5.48
Travelling Sideband	<i>Monadenia fidelis celeuthia</i>	3.66
Siskiyou Shoulderband	<i>Monadenia chaceana</i>	3.56

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West Cascades

Priority Invertebrates – East Cascades/Modoc Plateau

This portion of the watershed is not important for any Priority Invertebrates.

Priority Habitats – West Cascades

Priority Habitat	Relative Abundance
Springs and Seeps	3.33
Southeast Late-seral Mixed Conifer	2.72
Deciduous Riparian (Willows and Other Shrubs)	1.26

Priority Habitats – East Cascades/Modoc Plateau

Priority Habitat	Relative Abundance
Southeast Late-seral Mixed Conifer	3.61
Late-seral High-elevation Fir Forests	1.71
Deciduous Riparian (Willows and Other Shrubs)	1.48

Mosier Creek-Columbia River - TRACS-49—Integrated Priorities Watershed

This watershed is assigned to the West Cascades Ecoregion, but probably should have been assigned to the East Cascades/Modoc Plateau Ecoregion. The watershed is in a transition zone between east and west Cascades ecosystems. For this reason Priority Species and Habitats are listed for both ecoregions.

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for biodiversity.
- One of the top 10 in the Region for Priority Plants.
- One of the top 30 in the Region for integration of priorities, due to high RA values for Priority Plants, a high biodiversity score, and moderate values for Priority Vertebrates.

Priority Vertebrates – West Cascades - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Oregon Spotted Frog	<i>Rana pretiosa</i>	2.92
California Mountain Kingsnake	<i>Lampropeltis zonata</i>	2.21
Larch Mountain Salamander	<i>Plethodon larselli</i>	1.71
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	1.55
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	1.35
Western Gray Squirrel	<i>Sciurus griseus</i>	1.14
Pika	<i>Ochotona princeps</i>	1.13

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West Cascades

Priority Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Larch Mountain Salamander	<i>Plethodon larselli</i>	2.91
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	2.70
Western Gray Squirrel	<i>Sciurus griseus</i>	1.78
Boreal Owl	<i>Aegolius funereus</i>	1.36
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	1.06

Priority Social/Economic Vertebrates – West Cascades

This watershed is not important for any Priority Social/Economic Vertebrates.

Priority Social/Economic Vertebrates – East Cascades/Modoc Plateau

Common Name	Scientific Name	Relative Abundance
Wild Turkey	<i>Meleagris gallopavo</i>	1.30

Priority Plants – West Cascades

Common Name	Scientific Name	Group	Relative Abundance
Howell's Bentgrass	<i>Agrostis howellii</i>	Vascular Plants	5.73
Oregon Sullivantia	<i>Sullivantia oregana</i>	Vascular Plants	5.33
Oregon Fleabane	<i>Erigeron oreganus</i>	Vascular Plants	5.18
Pale Blue-eyed-grass	<i>Sisyrinchium sarmentosum</i>	Vascular Plants	4.23
Howell's Fleabane	<i>Erigeron howellii</i>	Vascular Plants	3.94

Priority Plants – East Cascades/Modoc Plateau

Common Name	Scientific Name	Group	Relative Abundance
Oregon Fleabane	<i>Erigeron oreganus</i>	Vascular Plants	5.92
Howell's Bentgrass	<i>Agrostis howellii</i>	Vascular Plants	5.73
Pale Blue-eyed-grass	<i>Sisyrinchium sarmentosum</i>	Vascular Plants	4.23

Priority Invertebrates – West Cascades

This watershed is not important for any Priority Invertebrates.

Priority Invertebrates – East Cascades/Modoc Plateau

This watershed is not important for any Priority Invertebrates.

Priority Habitats – West Cascades

This watershed is not important for any Priority Habitats.

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West Cascades

Priority Habitats – East Cascades/Modoc Plateau

Priority Habitat	Relative Abundance
Oak and Pine	3.72
Springs and Seeps	2.05
Late-seral Ponderosa Pine	1.62
Late-seral Mixed Conifer - Eastside	1.62
Deciduous Riparian (Willows and Other Shrubs)	1.54
Cottonwood Riparian	1.26

Upper North Umpqua River - TRACS-79—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Southeast Late-seral Mixed-conifer habitat.

The watershed is also important because it has a high RA value for Priority Vertebrate species and a moderate RA value for Priority Habitats.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>	3.21
Fisher	<i>Martes pennanti</i>	2.34
Ringtail	<i>Bassariscus astutus</i>	2.21
Bufflehead	<i>Bucephala albeola</i>	1.97
American Marten	<i>Martes americana</i>	1.72
Western Gray Squirrel	<i>Sciurus griseus</i>	1.44
Northern Goshawk	<i>Accipiter gentilis</i>	1.37
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.21
Cascades Frog	<i>Rana cascadae</i>	1.18
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.01

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.03

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
Thompson's Mistmaiden	<i>Romanzoffia thompsonii</i>	Vascular Plants	1.61

TRACS: Appendix R

West Cascades

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Siskiyou Shoulderband	<i>Monadenia chaceana</i>	2.98

Priority Habitats

Priority Habitat	Relative Abundance
Southeast Late-seral Mixed Conifer	2.87
Late-seral High-elevation Fir Forest	1.27

Upper South Umpqua River - TRACS-80—Habitat Conservation and Restoration Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for Southeast Late-seral Mixed-Conifer habitat.

The watershed is also important because it has a high RA value for Priority Vertebrates and moderate RA values for Priority Plants and Socially and Economically Important Vertebrates.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Foothill Yellow-legged Frog	<i>Rana boylei</i>	3.11
Ringtail	<i>Bassariscus astutus</i>	2.60
Fisher	<i>Martes pennanti</i>	2.38
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>	2.06
American Marten	<i>Martes americana</i>	1.98
Red Tree Vole	<i>Arborimus longicaudus</i>	1.84
Western Gray Squirrel	<i>Sciurus griseus</i>	1.51
Dunn's Salamander	<i>Plethodon dunni</i>	1.39
Cascades Frog	<i>Rana cascadae</i>	1.37
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.28
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.13
Northern Goshawk	<i>Accipiter gentilis</i>	1.11

Priority Social/Economic Vertebrates

Common Name	Scientific Name	Relative Abundance
Elk	<i>Cervus canadensis</i>	1.05

TRACS: Appendix R

West Cascades

Priority Plants

Common Name	Scientific Name	Group	Relative Abundance
North Umpqua Kalmiopsis	<i>Kalmiopsis fragrans</i>	Vascular Plants	3.89
Thompson's Mistmaiden	<i>Romanzoffia thompsonii</i>	Vascular Plants	2.70
Mt. Mazama Collomia	<i>Collomia mazama</i>	Vascular Plants	1.45

Priority Invertebrates

Common Name	Scientific Name	Relative Abundance
Siskiyou Shoulderband	<i>Monadenia chaceana</i>	2.69

Priority Habitats

Priority Habitat	Relative Abundance
Southeast Late-seral Mixed Conifer	3.31

ZigZag River - TRACS-92—Integrated Priorities Watershed

This watershed is a priority because it meets the following criteria:

- One of the top 10 in the Region for biodiversity.
- One of the top 30 in the Region for integration of priorities, due to a high RA value for Priority Plants and Priority Vertebrates.

Priority Vertebrates - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Relative Abundance
Cascade Torrent Salamander	<i>Rhyacotriton cascadae</i>	2.41
Bufflehead	<i>Bucephala albeola</i>	2.37
Fisher	<i>Martes pennanti</i>	2.32
Oregon Slender Salamander	<i>Batrachoseps wrightorum</i>	2.25
American Marten	<i>Martes americana</i>	1.68
Cascades Frog	<i>Rana cascadae</i>	1.67
Harlequin Duck	<i>Histrionicus histrionicus</i>	1.66
Western Gray Squirrel	<i>Sciurus griseus</i>	1.54
Red Tree Vole	<i>Arborimus longicaudus</i>	1.52
Pika	<i>Ochotona princeps</i>	1.50
Northern Goshawk	<i>Accipiter gentilis</i>	1.48
Dunn's Salamander	<i>Plethodon dunnii</i>	1.46
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	1.25

TRACS: Appendix R

West Cascades

Priority Social/Economic Vertebrates

This watershed is not important for any Priority Social/Economic Vertebrates.

Priority Plants - Federally listed and candidate species are identified in **bold**.

Common Name	Scientific Name	Group	Relative Abundance
Moss	<i>Brachydontium olympicum</i>	Nonvascular Plants	5.31
Lichen	<i>Bryoria subcana</i>	Lichen	4.73
Howell's Fleabane	<i>Erigeron howellii</i>	Vascular Plants	3.71
Whitebark Pine	<i>Pinus albicaulis</i>	Vascular Plants	2.41

Priority Invertebrates

This watershed is not important for any Priority Invertebrates.

Priority Habitats

Priority Habitat	Relative Abundance
Springs/Seeps	5.18
Wet Meadows	1.93
Deciduous Riparian (Willows and Other Shrubs)	1.53
Late-seral Low- and Mid-elevation Douglas-fir — Western Hemlock	1.16